PAGE 6 PUBLISHING's

NEW ATARI USER

Issue 50 £1.95

June/July

XL/XE



INVADERS!

In Turbo Basic

PAGE 6 WRITER

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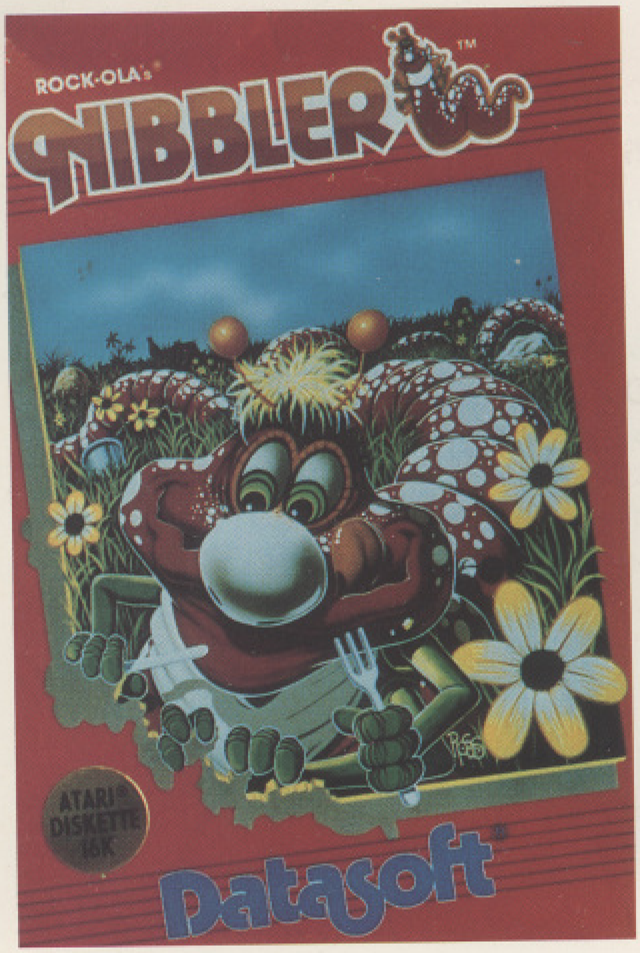
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06

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FREE

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**NOTE the game is on disk only and we will not therefore include a copy automatically unless you order contains disks*

FULL DETAILS OF THE OFFERS AVAILABLE FROM THE ACCESSORY SHOP ARE ON PAGES 47 to 51. AN ORDER FORM IS ON PAGE 52

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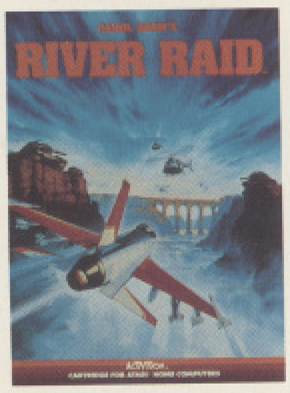


KABOOM

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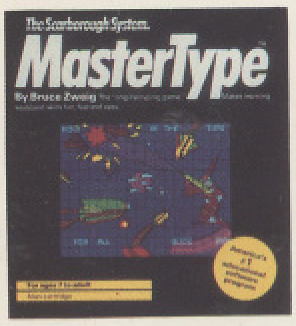


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OUR PRICE £3.95



MASTERTYPE

Now anyone can learn to type whilst playing a challenging game. Mastertype was one of the original 'game based' typing tutors which requires you to zap enemy words as they approach from the four corners of the screen. But it not really a game for, before you realise it, you will become quite proficient on the keyboard as you progress through 18 lessons of increasing complexity.

ROM CARTRIDGE

OUR PRICE £2.95

SUPER SPECIALS

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FOUR of the best games for the Atari in one pack at the amazingly low price of just £2.99. Are these sub quality games? No sir! Not with Colossus Chess 3.0, Electraglide, Blue Max and Alley Cat as the selection, any one of which would be a bargain at £2.99 but you get all four! You had better hurry!

DISK ONLY *Recommended price £14.95*

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MAXWELLS DEMON

Check out the review in Issue 49. Paul Rixon found this simple game to be quite addictive and at this price can you afford not to become addicted! It's a different type of game, more in the Tetris mould than an arcade game. It sure makes you think and the price won't break you if you don't get fully hooked.

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DISK OR CASSETTE *Recommended price £7.95 cassette/£9.95 disk*

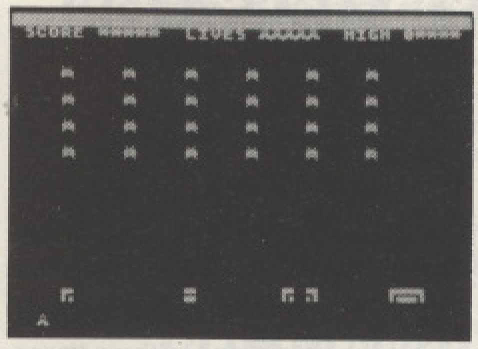
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ALL ITEMS MAY BE ORDERED WITH THE ORDER FORM ON PAGE 52 OR BY WRITING TO THE ACCESSORY SHOP, PAGE 6, P.O. BOX 54, STAFFORD, ST16 1DR
CREDIT CARD ORDERS MAY BE TELEPHONED TO 0785 213928

'The magazine for the Dedicated Atari User'

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Issue 50 June/July 1991



INVADERS
A classic in Turbo Basic - it's *FAST!*

SUBSCRIPTIONS
Annual subscription rates (6 issues)

UK	£10.00
Europe	£15.00
Elsewhere (sea)	£15.00
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A disk containing all of the 8-bit programs from each issue of NEW ATARI USER is available either separately or on subcription. Single price £2.95 per disk, Subscription rates (6 issues)

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Elsewhere (sea)	£32.00
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Please make cheques payable to PAGE 6 PUBLISHING and send to the Editorial address shown below

SUBMISSIONS

PAGE 6 welcomes and encourages its readers to submit, articles, programs and reviews for publication. Programs must be submitted on disk or cassette, articles should wherever possible be submitted as text files on disk. We seek to encourage your participation and do not have strict rules for submissions. If something interests you, write a program or article and submit it! Appropriate payment will be made for all published programs and articles, all payments being made at the end of the second month shown on the cover of the issue concerned.

The next issue of NEW ATARI USER will be on sale 25th July
Editorial copy date is 17th June

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PAGE 6 PUBLISHING's NEW ATARI USER

Issue 50
June/July 1991

'The Magazine for the Dedicated Atari User'

ISSN No. 0958-7705

THE CREDITS

All of the usual stuff is on page 3 but here are the people who made this issue possible.

Les Ellingham pressed on as usual doing all of the typesetting, layout, paste up, photographs etc. whilst desperately trying to lose some weight, get fit and do a lot of school work with Sean. It ain't all possible!

Sandy carried on as usual chasing the ads, booking some of the days out and looking after the office

Paulette amazed us all by slotting right in and not getting thrown by anything. She even got out the hoover and cleaning stuff after a few days and started washing down the desks! Must have been the farmyard smells still lingering!

The Regular Contributors, who provide the backbone of the magazine and can generally be relied upon to come up with good articles and reviews, are ....

Mark Hutchinson	**John S Davison**
John Davison jr	**John Sweeney**
Paul Rixon	**Damon Howarth**
Ian Finlayson	**Peter Hickman**

N.B. The Tipster also contributes

All other contributors for this issue are individually credited alongside their articles or programs. Thanks to everybody for sharing their enthusiasm with other Atari users.

Goodness knows what the cover is going to be, it will probably be a photo by **Paul Lingwood** (then again it might not be!)

So what has inspired the creation of this issue? Paul Brady with a superb track called Nobody Knows from an album that most people dismissed. Joni Mitchell for another album that you have to listen to. Christy Moore for another good one if you skip the track about the Birmingham Six, a bit of Clint Black and Bob Dylan whose three CD bootleg series set proves just how great he is and continues to be. Of special note is Series of Dreams brilliantly produced by Daniel Lanois. Chris Rea was disappointing. At this very moment Miro are bringing back memories of the Incredible String Band and Dr. Strangely Strange. You were right, Rob! Also picked up three Run Rig singles at a Collectors Fair, excellent as usual. Sadly, with the current economic climate, new releases worth having are becoming few and far between.

NEW ATARI USER is the magazine, PAGE 6 is the concept. Wherever you see PAGE 6 you'll know what it means!

The next issue of NEW ATARI USER could feature YOUR article or program, so SEND IT IN NOW!

PAGE 6 shows just what you can do with your Atari. With the exception of final output on a Linotron and use of a repro camera for the listings and photos, the magazine is prepared entirely with Atari based equipment and software - not a Macintosh or IBM in sight! Hardware used includes 130XE, 1050 disk drive, 810 disk drive, 410 cassette (occasionally!), 850 Interface, NEC 8023 printer, 1040ST, SM124 Monitor, Atari SH204 hard disk drive, Cumana 1 meg disk drive, Epson RX100 printer, Kyocera laser printer, Microstuffer printer buffer. Software includes Superscript, Turbo Basic, Kermit, PC Intercomm, TARI-TALK, Print Wiz, STWriter, Protext and Fleet Street Publisher.

Articles and programs submitted on XL/XE disks are subjected to various custom written programs before being transferred across to the ST via TARI-TALK. All major editing is done with Protext and pages are laid out with Fleet Street Publisher. A disk with the finished pages is sent up to a typesetting bureau to be output on a Linotron 300 and, hey presto, finished pages are sent back. It really does work - at last! All that is left is to drop in the listings and photos. Well, it's not quite as easy as that, but you get the idea!

Editorial

AN IMPORTANT MESSAGE!

Welcome to the 50th Issue of PAGE 6 (or New Atari User as it is now known). Fifty issues represents well over eight years publishing of a magazine for the Atari 8-bit and we have now outlived almost every other magazine. In the States, where it all began, the Atari 8-bit magazines have now gone and the ST magazines are going the same way. We have survived because we take a totally different view to magazine publishing. With no staff, just freelance contributors, we can afford to continue supporting the Atari 8-bit even when the advertising drops off and the sales dip but how much longer can we do that?

It would be nice to say 'Things have never been better, here's to the next 50 issues' but we have to be realistic. You will have noticed that the advertising in these pages has dropped almost every issue till we are now left with the dedicated few and there is not much chance of us picking up more whilst we continue to support the 8-bit Atari. In the newsagents we have been fighting an uphill battle for the past year, as have many specialist publishers, and we have to face the fact that the newstrade is not interested unless a magazine sells in considerable numbers. The big problem with the newstrade is that we don't see the sales figures for a particular issue until at least four months after that issue went on sale and if we are losing money then it could be six months before we are able to adjust. With little advertising support that is no longer sensible.

So what can we do? Pack up? Not if we can help it! What we will have to do in the foreseeable future is go back to being a subscription only magazine for the enthusiasts who still really care about the 8-bit Atari and hope that enough of you do care enough to subscribe and get your friends to subscribe. To make it viable for us to continue to provide a magazine of the same quality we need at least 5,000 subscribers. That shouldn't be too hard, if just one in three of you who buy the magazine in the newsagents subscribe we will be there easily.

Watch out for an announcement in the next couple of issues to see which way things go. And don't go around saying that we are packing up, it simply isn't true. If you don't want us to support your Atari any longer then we will pack up but I don't believe that will happen. I strongly believe that you will support us all the way.

IT'S UP TO YOU!

The future of New Atari User (or we might go back to calling it PAGE 6!) is in your hands. When the time comes you will need to show your commitment just as we do every issue.

In the meantime you can help right away ....

WRITE FOR US

We are virtually out of games programs to publish. Someone reading this has written some reasonable games, so dust them off, write a short description and send them in. Send in all sorts of other programs as well. In fact send in anything that you feel will interest your fellow Atari users.

We need articles on programming, reviews of rare software, anything and everything to do with Atari. If you have written something for your local User Group newsletter, send us a copy and we'll republish it (providing your group doesn't mind). You will be supporting the Atari community and you'll also get paid for it, anything between £20 and £150! It makes sense to share your knowledge and so help ensure the survival of the Atari 8-bit community.

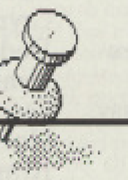
We do have a few nice articles lined up. There are a couple of very good articles coming in the next issue from Ann O'Driscoll who most probably never thought they would be accepted, but she got out the word processor and had a go. She ended up with two very nice articles on writing quiz programs and using strings. Thank you Ann, your efforts will see their reward in the coming issues. What Ann can do, many others can do, so start thinking, get writing and help to ensure that this magazine remains as interesting as it has always been.

With your help, both in contributing and in subscribing, maybe we will, after all be able to say 'Here's to the next 50 issues'!

Les Ellingham

Mailbag





Must remember to write to Mailbag

P.O. Box 54
Stafford
ST16 1DR

BEWARE

I wonder if any reader of New Atari User can throw any light on an advert that appeared in Issue 45 in the Penpals section. The advert was for a new User Group called Atari Addition of 1, Brodmeadow Green, Stowland, Bilston, West Midlands.

I sent off for details and received a letter telling of a bi-monthly newsletter and a starter pack of two free disks. The subscription for one year plus free disks was £6.50 which I though seemed good value so I sent a cheque last September. It was cashed within a few days but to date I have not received a thing from them. Even an enquiry asking them what was happening has been ignored.

As New Atari User is the mainstay of the Atari 8-bit I feel that if this was a con I was not the only one to fall for it, so maybe you could find something out for me?

T. L. Bingham
Lincoln

To date we have not been able to discover more, and we have not had any other complaints so it could be a number of things. The notices in the penpals section are all taken in good faith and indeed those that look suspicious to us in the first place are never printed, but of course some problems may occur when sending money to 'unknown' persons. In the majority of cases it is simply over enthusiasm by someone who thinks they can run a User Group but then finds that it is not as easy as they thought. Perhaps this is the case here? The chap that placed the notice was Lee Stark so perhaps you could do the decent thing, Lee, and get in touch with Mr. Bingham and let him have his money back? In the meantime if any other reader has had similar problems do let us know and if this is not an isolated incident we will ensure that appropriate action is taken.

MORE DISK ROOM

I would like to know if there is an easy way of putting more than one program on a disk? A silly question perhaps but let me explain.

When I type in certain programs from your mag such as Snakes and Ladders an AUTORUN.SYS file is created. This is all very well but a lot of disk space is left just begging to be used. Would it not be possible to write a small routine incorporating all the AUTORUN-.SYS files for the programs on the disk? The routine could have its own AUTO-RUN.SYS to display an on screen menu displaying the contents of the disk.

Is there a program available to do this or would I have to write my own? If so could you refer me to an appropriate book as my programming abilities are rather limited.

Kevin Traylor,
Dover

AUTORUN.SYS files are generally created for convenience to save the user from remembering filenames. It is much neater to just boot up a disk and have the program run even though, as you say, a lot of disk space appears to be wasted. All this 'wasted' space can be used however, in a number of ways. Firstly there is nothing to stop you using the disk to store other programs as long as you don't save another program called AUTORUN.SYS (for it will overwrite the first one). You can write as many other programs to the disk as you want, but of course you cannot use that disk to boot up with. Just use another DOS disk and swap over when you want to run a program. Secondly you can change the filename in the majority of cases to any name ending in '.OBJ' (or any other extension) and run the program from DOS, although in rare cases this will not work. If you change the name from AUTORUN.SYS to SNAKE.OBJ using option E of the DOS menu, you can run the SNAKE.OBJ program from DOS option L. If you rename the file you can then use the disk for other programs that create AUTORUN.SYS files, renaming each as you go.

Once you have renamed the files there is nothing to stop you putting a menu on the disk to select each file, although again in rare cases it may not work. There are many different menu programs and you will have to experiment to find a menu that will work with all the programs you have. The Issue disks that are available with each issue of New Atari User work on this basis and, if you buy one of these, you can take off the Menu and the AUTORUN.SYS file that runs the Menu and transfer them to your own disk. Be warned though that the menus are different, depending on whether there are machine code programs on the particular disk so you will have to choose the right one! There is also a disk in the PAGE 6 LIBRARY that has nothing but a selection of menus on it and there is bound to be one there that will work for you.

Experiment and you will find that you should be able to use all of your disk to the full. One final warning, don't try to save programs to commercial disks as, although they may have lots of spare space, quite often the directory has been moved and you will most likely overwrite the original program.

DISASTER!

I have an Atari 65XE and am new to programming. After spending many long hours typing in a very long program I decided to save it on tape. I suppose because I was tired, I typed CLOAD instead of CSAVE and pressed the Return key. In sheer panic I pressed the Break key and after a few seconds the 'READY' prompt came up. I listed the program and to my sheer horror nothing came up. I lost the whole program.

Can you tell me if there is a way of restoring a program after making such a stupid mistake.

A. Hoyle,
Hull

Haven't we all done this at some time? Whenever the CLOAD or LOAD statement is typed, the first thing that happens is that the computer issues a NEW command to itself clearing out the various tables it has set up ready for the program to be loaded. As this is the very first thing to happen, you would not be able to press the Break key in time to save the program. It is effectively lost, however I do recall reading somewhere that the NEW command does not actually delete the program from RAM and it is possible to recover it with another utility. I cannot trace the source of this so maybe another reader could discover something and maybe let us have a program we could publish?

ENCOURAGEMENT

I'm pretty new to the computing scene although I've had a Spectrum for about four years but hardly ever used it. About 6 months ago my son took a fancy to his friend's 800XL because it had a slot in the top! I bought it for him for £6.50 and was amazed at the quality compared with the Spectrum. I then bought an 810 disk drive for £35 and really became enthusiastic, no more hours of typing followed by 'CRASH!' followed by five minutes reloading if you had been lucky enough to save it to tape.

Since then I've been amazed at how much support the 8-bit still has and it's a marvellous way to learn computing at budget prices. I've noticed in reading back numbers of various Atari support magazines a constant theme of poor after sales support by Atari themselves and original high prices for software compared to Sinclair, hence the Spectrum still has several magazines on sale in the high street shops and a healthy supply of new software whereas the vastly superior Atari 8-bits are having a bit of a hard time.

If newsagents are reluctant to order your mag 'on spec' they might perhaps be prepared to display a mock cover drawing attention to your existence. A lot of my Atari colleagues didn't know that you were alive and kicking!

John Perrin,
Folkestone

What a lucky man! An 800XL for £6.50 and a disk drive for £35. Any more were they came from, John! As to the newsagents, we have all but given up, having done everything we can to get the newstrade to pay attention but it is a losing battle. Why keep a specialist magazine on the shelf for a couple of weeks when you can turn over dozens of Mutant Turtles and Kylie mags? It is now up to to the likes of you to spread the word. If you have Atari owning friends that don't know about us, get them to post off £10 for a subscription. You know they won't be wasting their money and you will benefit as well in the long run by helping to ensure that we keep going as long as those great Atari machines are around.

WON'T WRITE

I own a 1050 disk drive with a US chip but I have a problem with it or it could be the computer. It has stopped formatting and will not write either yet it will still read. Can you help?

William Hunsley,
Troon

If you check back through the letters column we have answered this one several times yet we still get lots of letters like this. Quite often the only thing that is wrong is that the felt pad that holds the disk onto the read/write head has become compacted so that there is not enough pressure to hold the disk against the head. Just remove the case and you will see a small arm just behind the spindle which holds the disk centre. You can lift this a little and you will see a small felt pad about one eighth of an inch square on the top (facing down). Grab a paperclip, opened out, and very carefully roughen up the surface of the pad taking great care not to touch the head underneath. You should find that, once you put it all back together, the drive writes again. This works in nine cases out of ten but if you have the unlucky tenth one, then you'll have to find somewhere to get it repaired.

PILLOCK!

I have a complaint to put to all the software companies who are supposed to be supporting Atari! I first got an Atari 800 in 1979 which cost me nearly £400. Them days there was software availability but it was very costly, average price was about £25. Nowadays there are many, many Atari users, the software prices have come down and that's great but where is the software?

I took a bus ride to what was known as Atari World to purchase some software and it was dismal! There was about 20 titles for the 8-bit. I myself own about 1,500 titles, such as Crystal Castles, Master of The Lamps, Super Pacman, Mario Bros plus many others which are unavailable to many Atari users. I have about 1,100 titles that are pirated, a few I have mentioned. Why aren't there games being released? Master of The Lamps has one of the best graphics screens I have seen on an 8-bit, it has brilliant music which definitely puts the Commodore to shame but the game has never been released on the Atari. I played it about 5 years ago on the C64 and then came across a copy for the Atari 8-bit.

So all you software companies out there just read this and remember Atari users aren't losers, it's you who don't make the money.

S. Dite
Manchester

A genuine letter! So come on software companies get some more software out because Mr. Dite is running out of things to rip off. If you spend six months developing a good game and then pay for all the artwork and packaging, duplication etc., you will be guaranteed to sell at least one copy but that one copy should keep thousands of Atari users happy when Mr. Dite and his friends have ripped it off. Good deal, eh? I just can't understand why the software companies don't release new stuff for the Atari, can you?

1029 EXTRA DUMP

I am hoping that your readers may be able to help me with a problem that I have with my 1029 printer.

I have been in search of a screen dump routine that will allow me to dump a standard screen but I also want to be able to dump an extra bit so that the dumped image will cover the width of a standard A4 page. I have written software that allows me to take a 62 sector screen and scroll it so that I can add an extra bit at the side thus if I can find a printer routine to dump it, it will allow me to dump the full width. I would be grateful if anyone can help with such a routine.

S.M. Harvey
Alton

DISK BONUS

THE AMULET

An Adventure by Peter Lister

Many of you may remember The Amulet being commercially released a while ago and reviewed by John Sweeney in these very pages. Now disk subscribers and others can get this great adventure absolutely free on the back of this issue's disk!

THE LEGEND OF THE CIRCLE OF NINE

(which you need to read to understand the adventure)

Many years ago, in the area we now call 'The Desolate Lands' there dwelt a nation born of wizards and witches. There was strong magic in those days and those who could manipulate the magic became powerful leaders, each with a following of loyal supporters.

Throughout 'The Bitter Years' many fierce battles were fought between the opposing followers of the warlocks and witches, often resulting in tragic loss of human life, but seldom really affecting the leaders themselves. This all changed with the arrival of Gadora. Some say she was the devil herself, others have darker thoughts, but most agree that it was Gadora who brought about the formation of 'The Circle of Nine'.

Her strategy of war was simple. Her spells were cast to weaken the wizards and witches, then her soldiers rode in and killed them. The people conceded. Some of the finest areas fell under her command and her army pillaged and raped the population.

Nearly a third of the known world fell to her, before the remaining nine leaders realised that they must join forces if she was to be defeated. A pact was entered, a demon summoned and 'The Circle of Nine' was founded.

The combined powers of the circle members prevailed and Gadora was denied her desire to conquer. Such was her strength however, that even the might of the Circle could not destroy her entirely, she was stripped of her powers and exiled forever from the known world.

Then began the era that was to be remembered as 'The Golden Years', an age of unprecedented enlightenment. The wizards and witches still ruled the land but instead of using their magic against each other, they joined forces and created new spells. Spells that brought water to the arid deserts, a new hardier grain to the fields and cattle that grazed contented in the new green pastures. The people grew strong in the shade of the Circle's protection and they crafted in leather and wood, bronze and iron, and brewed fine wines.

As news of the 'Circle of Nine' and their spells spread, so more and more travellers came to view these events for themselves. Many brought their families and many settled and the community flourished and prospered.

The members of the Circle rejoiced in the knowledge that they were well loved by the people of the land and from time to time certain special spells would be cast for the peoples entertainment and enjoyment. In return, the people continued to provide food, wine and clothing for the Circle members, as their fathers and forefathers had done.

The golden years lasted for several generations but, it is said all good things come to an end and, sadly, the golden years were to prove no exception. As one summer came to a close and the autumn leaves were browning on the trees there came news to the Circle of a new settler in a Western land and her name brought shivers to the minds of the Circle members.

Ledora was her name. She was a new young witch with a small following of soldiers and peasants. She denied the Circle's right to rule and rejected their intervention in her affairs.

P.K. Psantam (who that year was 1st speaker in the Circle) was convinced that she was a reincarnation of their arch enemy Gadora and the rest of the Circle were concerned over her apparent disregard of their well established rights in the area.

Little is known of what happened next. Some say that Ledora trapped the members of the Circle and others believe it was the Circle themselves who cast a wrong spell but the end result is now history. Suddenly, one autumn evening, the Magic went away.....

The story continues on the disk

PLAYING THE AMULET

Your instructions to the program can be in various forms, the simplest being single letter abbreviations of the most popular commands. The following are valid single letter commands

N - Move North	**A** - Again
S - Move South	**I** - Inventory
E - Move East	**L** - Look
W - Move West	**Q** - Quit
U - Move Up	**X** - Index
D - Move Down	

The following 2 letter commands will also be accepted

NE - Move Northeast	**SE** - Move Southeast
NW - Move Northwest	**SW** - Move Southwest

The program accepts some single word instructions. Examples and brief explanations are

AGAIN - Repeats last command
BRIEF - For seasoned players, who know their way about. Doesn't load or display location description from disk
FULL - Loads and displays location description from disk on 1st visit only. NOTE that in either BRIEF or FULL mode the **LOOK** command will always load and display full location description
INDEX - Checks disk for saved games and displays to screen, then provides option to SAVE or RESTORE current game
INVENTORY - Lists everything that you are carrying
QUIT - End current session
RESTORE - Restore game from disk or memory
SAVE - Save current game to disk or memory
WAIT - Do nothing for 1 move

Getting The Best From The Parser

The program recognises many verbs and nouns plus some adjectives and conjunctions but expects your input to fall within one of the following patterns:

(V = Verb, A = Adjective, N = Noun, C = Conjunction)

VN	e.g. EXAMINE SCREEN
VAN	e.g. KICK SLOPING SCREE
VNCN	e.g. THE ROPE TO THE BOAT
VANCN	e.g. GIVE HOLLOW LOG TO HERMIT
VNCAN	e.g. OPEN DOOR WITH SMALL KEY
VANCAN	e.g. PUT BENT NAIL IN SMALL FIRE

You will see that under the above system, the maximum number of words expected in one phrase is six. If you enter more than six words in a phrase, you will be asked to rephrase it. Similarly, if your input doesn't fall into one of the above groups, you will be asked to rephrase it.

Next the parser checks your words against its own memory and will inform you of any words it doesn't understand and, finally, the parser will attempt to execute your instructions and the program will respond accordingly.

There are a couple of special cases of input involving the word ALL, that will only work with the verbs TAKE and DROP e.g. TAKE ALL (visible objects) and DROP ALL (carried objects).

You can also use the word BUT in conjunction with the above commands e.g. TAKE ALL BUT SCREE or DROP ALL BUT LOG.

Multiple Input

The full stop '.' and comma ',' are reserved for multiple input. Although you are limited to a maximum of six words per phrase you can actually enter up to two full lines of input. Separate phrases or instructions should be separated with '.' or ',' e.g. GO NORTH, TAKE LOG, LOOK. U. D. INDEX

You should not end your input with a full stop as the program will expect another instruction and will display an error message.

Saving and Restoring Games

There is an internal save feature which allows you to save your current situation in memory (very useful just before you try something dangerous!). You can also Save and Restore to and from disk. You will need a blank disk formatted in DOS 2.0 or 2.5. You can have as many 'Saved Game' disks as you wish but each can only contain 10 saved games (0 - 9).

Screen Colour

You can adjust the screen colour to suit your taste by repeatedly pressing the OPTION key.

Help

If you type HELP at any time you will be referred to this section. There are many problems to be solved and clues are embodied in the text messages you receive.

Remember to examine everything you find, nearly all objects have use within the framework of the adventure. Some of the characters you meet may help you, but then again ... some may not!

THE AMULET is the BONUS on this Issue's disk which disk subscribers will already have received with the magazine. The Issue disk also contains all of the programs from this Issue ready to run and can be purchased separately for just £2.95 from PAGE 6, P.O. BOX 54, STAFFORD, ST16 1DR. Credit card orders may be telephoned to 0785 213928.

NOW YOU CAN ADD YO

NOT YOUR AVERAGE SCROLL

The fairly short BASIC program presented here (Listing 1) will print a scrolling message at the top of your screen in Graphics Mode 2, whilst retaining the normal editing screen below. This program can be quite easily integrated into, say, a title screen for a game; telling you instructions and other useful information.

So what, you might say! You've already seen a jerky BASIC scroll and expect something similar, but this program has a number of features which make it stand out from the rest!

Firstly it is a machine code routine which controls the scrolling and this runs in a Vertical Blank Interrupt which means you can have other things, such as BASIC animation, going on at the same time. Secondly it manipulates the Display List and smooth scroll registers so that the message scrolls perfectly smoothly. Finally I have added to the machine code routine, a Display List Interrupt, which enables an effect whereby the middle section of the characters, vertically, is brightest and the luminance decreases towards the edges.

You'll see what I'm on about if you type in Listing 1, which is the BASIC program which achieves the VBI scroll.

LIMITATIONS

As you will discover in any routine there are always limitations! However the limitations in this program are not at all serious.

The biggest is the BASIC program's use of page 6 ($0600-$06FF), so you will need to adapt your program if you have some code requiring this useful RAM area. You could use a memory block mover (such as the ones featured in Steve Williamson's Machine code library) to move routines in and out of page 6 as required or, if you have an assembler, you can alter the source code listing (Listing 2) to your requirements.

The other limitation is that colour register 0 (location 708) is used in the routine, so unless you want other text or graphics to be the same colour as the scroll text do not use this register. Again assembler language users can alter the source code to their taste.

ALTERING THE SCROLL

The actual message displayed is stored in DT$ from lines 70 to 90. One important note is to remember to put 20 spaces (or full stops etc.) at the beginning and end of your message otherwise you will not get a smooth transition at the end, when the scroll restarts.

Do you like the scroll at the top? Perhaps you want it at the bottom? Unfortunately this is not a simple task, and requires manipulation of the display list (see Andrew Weir's Display list article or Mapping The Atari for information). To give you a start, however I will show you how to get the scrolling line at the bottom of the screen.

Retype line 150 to read:

150 DATA 112,112,66,255,255,2(20times),240,87,255,255,65,255,255

(Note the 255's are dummy bytes where the required locations are filled in by the program)

Line 40: change the POKE DL+6,PEEK(88) to POKE DL+3,PEEK(88) and change the POKE DL+7,PEEK(89) to POKE DL+4,PEEK(89)

Line 130: change POKE DL+2,STL to POKE DL+L-4,STL and change POKE DL+3,STH to POKE DL+L-3,STH

Change line 190 to:

190 X=USR(1536,DL+L-4)

(Note DL = the start address of the display list. L = the length of the display list and STL and STH indicate the high and low bytes of the start address of the scrolling message)

Other information you might like to know is how to turn the scroll off! To turn off simply type the following commands into your program or in direct mode.

```
POKE 54286,64
POKE 546,95
POKE 547,228
GRAPHICS 0
```

This should be enough to get rid of it on all machines!

CHECK OUT THE SOURCE CODE MAESTRO!

As mentioned before I have also included the source code for the machine code routine for all you assembly language programmers out there! This is for examination and for use in machine code programs, but it is at the moment designed to interface with BASIC, so you must design a machine code routine to do the same job as the Basic program, i.e. set up the display list. The program is well annotated and you should have no problems.

MESSAGES TO YOUR

YOUR OWN SCROLLING

```
EI 1 REM ********************************
ZD 2 REM *          VBI SCROLL          *
RH 3 REM *     a scrolling message      *
CJ 4 REM *     which runs in a VBI      *
XH 5 REM *         by DANIEL LEA        *
ED 6 REM * ---------------------------- *
DZ 7 REM *  NEW ATARI USER - JUNE 1991 *
EP 8 REM ********************************
NO 9 REM
LY 10 POKE 106,144:L=34:GRAPHICS 5:DL=PEE
   K(560)+256*PEEK(561):P=PEEK(560)+L:IF
   P>255 THEN P=P-256:POKE 89,PEEK(561)+1
GS 20 POKE 559,0:POKE 54286,192
KV 30 REM POKE DLIST
TR 40 POKE 88,P:FOR I=0 TO L-1:READ A:POK
   E DL+I,A:NEXT I:POKE DL+6,PEEK(88):POK
   E DL+7,PEEK(89):POKE 87,0:POKE 703,24
SI 50 DIM DT$(280):ST=144*256
QX 60 REM THE SCROLL MESSAGE
BL 70 DT$="........................HELLO NE
   W ATARI USER READERS. THIS IS A SCROLL
   Y MESSAGE BY DAN OF HUMBERSIDE."
IC 80 DT$(100)="... TO CHANGE THE COLOUR
   OF THE SCROLL PRESS BREAK (DON'T WORRY
    THE SCROLL STILL WORKS BEC"
FM 90 DT$(190)="AUSE IT RUNS IN A VBI.) T
   HEN POKE 708 WITH A MULTIPLE OF 16....
   .BYE!!!...................."
DO 100 D=LEN(DT$):FOR I=1 TO D:POKE ST+I-
   1,ASC(DT$(I,I))-32:NEXT I:POKE ST+D,64
DM 110 REM POKE DLIST WITH ADDRESSES OF
BW 120 REM THE SCROLL ETC
PJ 130 POKE DL+L-1,PEEK(560):POKE DL+L,PE
   EK(561):STH=INT(ST/256):STL=ST-(STH*25
   6):POKE DL+2,STL:POKE DL+3,STH:? "K"
LP 140 REM DLIST DATA
MK 150 DATA 240,87,255,255,112,66,255,255
   ,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2
   ,2,2,2,2,65,255,255
OK 160 REM READ IN MCODE FOR THE SCROLL
VK 170 RESTORE 220:FOR I=0 TO 179:READ MC
   :POKE 1536+I,MC:NEXT I
EU 180 POKE 559,34:POKE 708,0
MM 190 X=USR(1536,DL+2)
UO 200 POKE 708,INT(PEEK(20)/2)*2
LT 210 GOTO 200
VQ 220 DATA 104,104,133,206,104,133,205,1
   60,0,177,205,141,176,6,133,203,160,1,1
   77,205,141,177,6,133,204,169
RC 230 DATA 51,141,34,2,169,6,141,35,2,16
   9,128,141,0,2,169,6,141,1,2,169,7,141,
   175,6,96,173
GS 240 DATA 196,2,141,178,6,24,105,16,141
   ,179,6,206,175,6,173,175,6,16,48,169,7
   ,141,175,6,165,203
MS 250 DATA 24,105,1,133,203,165,204,105,
   0,133,204,160,0,165,203,145,205,160,1,
   165,204,145,205,160,21,177
XU 260 DATA 203,201,64,208,10,173,176,6,1
   33,203,173,177,6,133,204,173,175,6,141
   ,4,212,76,95,228,72,120
QX 270 DATA 173,178,6,141,10,212,141,22,2
   08,238,178,6,238,178,6,173,178,6,205,1
   79,6,208,233,206,178,6
QQ 280 DATA 206,178,6,173,178,6,141,10,21
   2,141,22,208,205,196,2,208,236,104,64,
   7,0,0,0,0
```

Listing 1 above

by Daniel Lea

Listing 2 below

```
10 ;        VBI SCROLL ROUTINE
20 ;          BY  DANIEL LEA
30 ; FOR NEW ATARI USER - XXX 91
40 ;
50 WSYNC=54282 ;Wait for horiz. SYNC.
60 TCOL=53270 ;Colour to be changed
70 STCOL=708  ;Shadow of colour
80 P05=203    ;Pg 0 reg used for
90 SCRST=205  ;temp. storage
0100 HSCROL=54276 ;Horiz. scroll reg.
0110  *=$600
0120  PLA ;discard no. param.
0130  PLA ;load in the address of the
0140  STA SCRST+1 ;DList where the
0150  PLA          ;scrolling
0160  STA SCRST   ;occurs
0170 ;use the contents of this to
0180 ;find the start of the message
0190  LDY #0
0200  LDA (SCRST),Y
0210  STA SCRWX
0220  STA P05
0230  LDY #1
0240  LDA (SCRST),Y
0250  STA SCRWX+1
0260  STA P05+1
0270 ;Store VBI and DLI vectors
0280  LDA #VBI&255
0290  STA 546
0300  LDA #VBI/256
0310  STA 547
0320  LDA #DLI&255
0330  STA 512
0340  LDA #DLI/256
0350  STA 513
0360  LDA #7
0370  STA YFINE
0380 ;
0390  RTS
0400 ;
0410 ;VBI TO SCROLL THE MESSAGE
0420 VBI
0430  LDA STCOL ;Set regs. for DLI
0440  STA LCOL  ;usage
0450  CLC
0460  ADC #16
0470  STA LCOLC
0480 MESSCROL
0490  DEC YFINE ;Smooth scroll
0500  LDA YFINE ;temporary regs.
0510  BPL MSEND ;if less than 0...
0520  LDA #7    ;then reset
0530  STA YFINE
0540 LINC
0550  LDA P05 ;increase position on
0560  CLC     ;line by one
0570  ADC #1
0580  STA P05
0590  LDA P05+1
0600  ADC #0
0610  STA P05+1
0620 COPY ;copy new position into the
0630  LDY #0  ;Display List
0640  LDA P05
0650  STA (SCRST),Y
0660  LDY #1
0670  LDA P05+1
0680  STA (SCRST),Y
0690  LDY #21
0700  LDA (P05),Y
0710  CMP #64     ;detect for end of
0720  BNE MSSCL2 ;data
0730 RESET
0740  LDA SCRWX  ;reset the scroll
0750  STA P05    ;back to the start
0760  LDA SCRWX+1
0770  STA P05+1
0780 MSSCL2
0790 MSEND LDA YFINE
0800  STA HSCROL
0810  JMP 58463
0820 ;DLI TO CHANGE THE COLOURS
0830 DLI
0840  PHA ;Store accumulator on stack
0850  SEI
0860 DLP1 LDA LCOL
0870      STA WSYNC ;wait for EOL
0880      STA TCOL ;store new colour
0890      INC LCOL  ;increment
0900      INC LCOL  ;the colour
0910      LDA LCOL
0920      CMP LCOLC
0930      BNE DLP1  ;ing colour
0940 DLP2 DEC LCOL  ;decrement
0950      DEC LCOL  ;the colour
0960      LDA LCOL  ;load new colour
0970      STA WSYNC ;wait for EOL
0980      STA TCOL  ;store colour
0990      CMP STCOL ;compare to start
1000      BNE DLP2  ;not = ..carry on
1010  PLA ;pull accumulator back
1020  RTI ;return from DLI
1030 YFINE .BYTE 7 ;store for hscroll
1040 SCRWX .WORD 0 ;used in VBI
1050 LCOL .BYTE 0  ;used in
1060 LCOLC .BYTE 0 ;DLI
```

RPROGRAMS.... NOW Y

THE A-Z OF GOLDEN (AND NOT SO GOLDEN) OLDIES

I hope that the three hundred or so small reviews in this series will enable new and old Atari owners to evaluate games they may have missed, compare my reviews with games they already have, or help them in choosing games they may be thinking of acquiring.

These mini-reviews by no means include every piece of Atari XL/XE software ever released. They represent, rather, a summation of my involvement with the 8-bit during the period of 1982-88. Here, you will (hopefully) find objective reviews of every game or utility I either owned, played, used or borrowed during those years. This series should serve as a useful guide to the major, and not so major, releases of yesteryear.

The bulk of the reviews concern software released in the mid 1980's. At that time you could walk into your local software store and always find new Atari releases. Today, alas, this does not hold true. Your best chances of finding some of the items mentioned throughout this series is probably through the advertisements found elsewhere in these pages. Also, always keep an eye on the second-hand market.

Contrary to what other computer owners may think, the Atari XL/XE range is still the best 8-bit computer system around. However, it is my opinion that only a select number of games exploited its audio-visual capabilities to the full.

Atari software these days, is not too easy to find. The items in this series marked 'scarce' should prove to be an even greater challenge than usual for software hunters.

Happy computing, and keep the Atari 8-bit alive!

KEY TO ABBREVIATIONS USED THROUGHOUT

Star Ratings:-

★	poor
★ ☆	poor/mediocre
★ ★	mediocre
★ ★ ☆	mediocre/good
★ ★ ★	good
★ ★ ★ ☆	good/excellent
★ ★ ★ ★	excellent

arc	arcade game
plat	platform game
sim	simulation
strat	strategy game
adv	text adventure
gr adv	text adventure with pictures
frp	fantasy role playing game
arc/adv	arcade game with puzzle solving/mapping etc.
(t)	game is available on tape
(d)	game is available on disk
(r)	game is available on ROM cartridge
bud	budget priced game (£1.99-£2.99)
mid	mid-priced game (£3.00-£8.99)
full	full priced game (£9.00+)
imp	game is (or was) only available on import from America
scarce	no price range available, because game is very difficult to get hold of

The price and format (tape, disk etc.) ranges quoted are intended as guidelines only. Games which were originally available on tape and disk can now be found on cartridge and vice-versa. This can also alter the price of the game in question.

Compiled by

Kirk Ruebottom

ACE OF ACES ★★☆
arc/sim Accolade/U.S. Gold 1988 (t,d) full

This is a reasonable attempt at a simulation of World War II aerial combat. Flying your plane over Europe, you encounter German ME109's, U-Boats, trains etc. The flight simulation part of the program (you feel as if you really are flying above the clouds) works pretty well, but the game is let down by some average graphics and and poor choice of colour. Nevertheless, flight simulator buffs may get a kick out of it.

ACTION BIKER ★★
arc Mastertronic 1986 (t) bud

Mastertronic's first effort for the Atari had you guiding Clumsy Colin through a city complete with obstacle course, roller coaster, jump ramps and many other features in an attempt to find items related to his motorbike. Initial impressions of the game (and its angled 3-D effect) are pleasing, and it does have some merit in the playability department. However, you soon notice the poor scrolling and lack-lustre sound effects and realise why it was a budget game.

ADVENTUREWRITER ★★
ut Atari 1984 (d) full

As its name implies, this utility will help you to write a computer adventure. Unfortunately, your adventures cannot contain graphics and can only cater for verb-noun commands. 'Adventurewriter' is fairly easy to use and comes with a large instruction manual, but its scope is somewhat limited because of today's emphasis on colourful pictures and complex parsers.

AIRSTRIKE ★☆
arc English Software 1982 (t,d) scarce

This one is basically an early 'Scramble' clone and nothing more. i.e. a horizontally scrolling 'blast everything that moves' type of game. Eight years ago it was considered fairly good. Nowadays it seems a little primitive. One of English Software's (where are they now?) first Atari releases.

AIRWOLF (See 'BLUE THUNDER')

ALI BABA AND THE 40 THIEVES ★★★
frp Quality Software 1982 (d) scarce

An early attempt at capturing the spirit of fantasy role playing on computer. You play the part of Ali Baba or one of his friends and attempt to rescue a fair princess. On the way you do battle with various nasties, and of course the 40 Thieves. All commands are input by joystick as you guide your character over the colourful multi-screen playing area. Not technically brilliant perhaps, but 'Ali' has a certain atmosphere and excitement which many other role playing games lack.

ALLEY CAT ★★★★
arc Synapse/U.S. Gold 1987 (t) bud

'Alley Cat' has humour, good graphics, excellent sound and is a joy to play. You may feel you're taking part in a cartoon as you help Freddy the cat avoid mad dogs, electric eels, sweeping brushes, other cats and lots more. This is definitely NOT a platform game. There has never been anything quite like it before or since. Unique and brilliant.

ALTERNATE REALITY: THE CITY ★★★★
frp Datasoft/U.S. Gold 1986 (d) full

A stunner. The opening demo and character creation sequence remains one of the best graphic and sound treats on the Atari (indeed, ANY 8-bit computer). In the game you find yourself walking down 3-D streets, entering bars, smithies, banks and such like. The sun rises and sets and day blends into night. You may find yourself actually 'living' your character. The only drawbacks to 'The City' are an over-emphasis on combat, too little interaction with the townspeople, and frequent disk swapping. But for all this, it remains a classic.

ALTERNATE REALITY: THE DUNGEON ★★★★
frp Datasoft/U.S. Gold 1987 (d) full

This is the second instalment in the now defunct series. Graphics and sound are of the same high standard as 'The City' although there is a little less use of colour. The main gameplay is essentially the same, but with a greater emphasis on interaction and puzzle solving. The designers spent a lot of time on 'The Dungeon' and it shows. One of the best fantasy role playing games on computer, and also one of the few games to make use of the 130XE's extra memory.

AMAUROTE ★★★
arc Mastertronic 1987 (t) bud

Fairly classy game from Mastertronic, one of their multitude of releases for the XL/XE. Graphics, although monochrome, are pleasing to look at and the music is well done. 'Amaurote' is unusual, a shoot 'em-up cum strategy game where you blast away at insects from an arachnoid vehicle. It may well appeal to more discerning gamers as well as joystick bashers. Recommended, especially at the price.

APPLE PANIC ★
plat Broderbund 1982 (t,d) scarce

Much copied (I don't know why) platform game in which you guide a little fellow up and down ladders to dig holes in platforms for nasties to fall through. Once they fall in a hole you fill it in again to kill them. Graphics and animation are very poor. This game would look more at home on the old Atari VCS.

ARCHON ★★☆
strat Electronic Arts 1983 (t,d,r) full



An interesting and much admired piece of software. Is it a game of chess or is it a sort of shoot 'em up? Well, in fact 'Archon' is both. Mythical monsters take the part of chess pieces as you manoeuvre them across the board to gain strategic positions. When an opponent enters the same square you are switched to a combat screen where the two monsters battle (or shoot) it out.

ARCHON II: ADEPT ★★☆
strat Electronic Arts 1984 (t,d) full

Heavily borrowing from the original, 'Adept' features a completely re-designed board (hence new strategy), different monsters (hence new combat techniques), and slightly better graphics. Love them or hate them, the 'Archon' games are certainly unusual, but also possibly slightly overrated.

ARDY THE AARDVARK ★★
arc Databyte 1986 (t) mid

This one has you steering Ardy's tongue through a maze-like ants' nest in his quest for food. Look out for worms though, because then you have to retract his tongue pretty sharply. 'Ardy' is highly amusing at first (do you know of any other games which feature an ever-lengthening tongue as a weapon?), but its appeal dwindles after a few plays.

A-Z OF ATARI SOFTWARE

ARKANOID ★★☆
arc Imagine Software (t,d) full



Clever 'Breakout' inspired game. Using your bat, you must knock out all the bricks on thirty-two different screens (and very pretty they are too). Features include multiple balls, a catching bat, various nasties and a lot more. What 'Arkanoid' has plenty of is playability. Not a game to stimulate your brain, but ideal to develop your hand-eye co-ordination.

ASTEROIDS ★★
arc Atari 1981 (r) mid

'Asteroids', that Golden Oldie where you move a little ship around the screen, blasting away at looming rocks which shatter and become smaller rocks etc. did make an authorised appearance on the 8-bit, courtesy of this Atari cartridge. Basically, a no-frills conversion written in about 5K of code! For die-hard shoot 'em up addicts only.

ASTROCHASE ★★
arc First Star Software (c,d) scarce

Its graphics are nice and its tunes are good, but 'Astrochase' is beginning to show its age. You'll probably tire quickly of shooting your way across a four-way scrolling space battlefield, defending the earth from various meanies. Best effect is the exploding earth scene at the end of game, when the screen bursts into brilliant light.

ASTROMEDA ★★★
arc Rhino Marketing/Budgie 1987 (t) bud

A challenging shoot'em up at a nice price. It's all done in 'Uridium' style as you guide your spaceship over a horizontally scrolling background. Nothing new here, but what sets it apart from the crowd is its terrific sound and above average graphics.

ASYLUM ★★★
gr adv U.S. Gold 1984 (t,d) full

A frustrating adventure with good graphics and an enormous vocabulary. You move around the 3-D maze of the Asylum using the cursor keys, with all other interaction (e.g. talking to people) being typed as a command in the usual adventure style. Puzzles are tough, and mapping is not made easy by the intricate design of the maze.

ATARI CASSETTE ENHANCER ★★☆
ut English Software 1983 (t) scarce

A useful utility containing features such as flashing cursor, variable list, line renumber, naming of cassette programs, catalogue programs on cassette, auto line numbering and a lot more. If you do not yet own a disk drive, but do a bit of programming or typing in of listings then A.C.E. can be highly recommended (if you can find it).

ATARIWRITER ★★★
ut Atari 1982 (r) full

A good all-round word processor from Atari and for Atari machines. The only drawback with 'Atariwriter' is that it is unable to display 80 column text. Available on cartridge, and its descendant 'Atariwriter +' is also available on disk.

ATTACK AT EP-CYG ★★
arc Bram Inc. 1982 (r) scarce

Weird and very little-seen shoot'em up which requires the Translator disk to work on XL/XE machines. You move your saucer craft through screen after screen of planet terrain (depicted in a 2-D side-on view) and blast enemy installations and ships using a cursor which moves independently of your ship. Controls are hard to get used to and the overall standard of graphics and sound make this one so-so.

ATTACK OF THE MUTANT CAMELS ★★☆
arc Llamasoft 1984 (t) bud

Jeff Minter was a renowned programmer on other 8-bit machines, so when he decided to convert 'Camels' to the Atari everyone waited with bated breath. But, apart from some nice audio-visual effects I feel he could have done better (the whole program uses about 10K of code!). Mastertronic re-released this at a budget price, so it's worth adding to the collection.

AUTODUEL ★★★
frp Origin/Microprose 1986 (d) full

Unfortunately, as with all Origin programs for the Atari, they opted for high (320x200) resolution and a technique known as artifacting to obtain more than the restrictive two colours of this Atari graphics mode. Result; fine if you have an American T.V., but on British tellies colours appear as black, white and purple. Don't let this distract you too much from what is otherwise an imaginative and involving game. It's a bit reminiscent of 'Mad Max' but on a large role playing scale. Well designed, with a lot of depth.

BALLBLAZER ★★★☆
arc Activision/Lucasfilm 1985 (t,d,r) full

Wonderfully weird game of a futuristic sport for one or two players. A split-screen technique allows each player to have his own first person perspective view of the pitch. As each player battles for the ball, the ground whizzes past at an alarming rate. Much of merit to be found in this one, especially the brilliant graphics and sound.



BALLOONACY ★
arc Microvalue/Tynesoft 1986 (t) bud

This formed part of the 'Four Great Games' compilation which retailed at £3.99. Taking that into consideration, 'Balloonacy' works out at roughly £1. It's not even worth that. Don't waste your time guiding a little fellow with a spiked helmet to burst falling balloons, unless you like making your Atari look like a ZX81.

BALLYHOO ★★★
adv. Infocom 1986 (d) full

Whether or not you rate 'Ballyhoo' will depend on how much you like adventures, and whether you prefer reams of text description to pretty pictures. This one from Infocom, set in a circus, is chock-a-block with atmosphere. You have a limited time to discover what has happened to the circus owner's daughter. It plays like a detective story, and some of the replies to your input are hilarious. Its only drawback is the annoying disk access after every move, which slows the game down considerably.

BATTLECRUISER ★★★
strat S.S.I. 1987 (d) full

Highly detailed computer wargame concerning ship to ship combat in World Wars I and II. Graphics are merely functional and play second fiddle to the wealth of game options, commands and strategies. Technical and complex, requiring extensive reading of the large game manual. A cerebral challenge for discerning wargamers.

B.C.'S QUEST FOR TIRES ★★
arc Sierra On-Line 1983 (t,d) mid

Initially hilarious, but ultimately monotonous game, programmed with tongue in cheek. You control B.C. on his stone-age monocycle, dodging boulders, trees, diving tortoises etc. There is a nicely done horizontally scrolling background of sky and mountains. Comical graphic touches are provided by B.C.'s various types of crashes. Easy to complete on the easiest skill level, so you may tire of it quickly.

BEACH HEAD ★★☆
strat Access/U.S. Gold 1984 (d) full

This multi-load game is made up of several different scenarios or mini games. These include navigating your ships through a mined sea passage, shooting fighter planes from the sky, sinking enemy ships, and leading a tank assault on the beach head itself. The mini games range from being bad to very good (the ship to air combat sequence is probably the best). Definitely one to consider acquiring.

BEACH HEAD 2 ★★★
start Access/U.S. Gold 1986 (d) full

Unlike its predecessor, 'Beach Head 2' is set completely on land and has you parachuting your assault force onto an island, rescuing hostages, making your escape, and finally confronting the Dictator. The four mini games are, on the whole, well done (with the exception of the dreadful 'Escape' sequence). Added interest is provided by the two player option and the ability to play either the good guy or the Dictator. Also included are some nice graphics and unusual sound effects.

BEER BELLY BURT'S BREW BIZ ★★
plat Americana/U.S. Gold 1986 (t) bud

This game is neither good nor bad, being merely a run-of-the-mill platform game. If your tastes lean towards dodging things, running and jumping around platforms and finding keys to get to the next screen, I suppose you could do worse than spend £2.99 on 'Beer Belly'.

BLUE MAX ★★★
arc Synapse/U.S. Gold 1983/1985 (t,d,r) mid

'Blue max' was one of the first home computer games to feature a diagonally scrolling screen (a la 'Zaxxon'), giving it a fair 3-D effect. You are in a World War I bi-plane and you strafe, dogfight and bomb your way through the adequately drawn battlefields. Solid arcade action. Hailed in 1983 as 'superb', 'Blue Max' still holds its own to this day.

BLUE MAX 2001 ★☆
arc U.S. Gold 1985 (t,d) mid

This sequel was programmed by the same person, put into a futuristic setting and maintained essentially the same gameplay as the original. But what went wrong? Your spaceship looks like a polo mint, it's darn near impossible to control, and the game just fails to grasp one's attention. Altogether a pretty awful game in anyone's books.

BLUE PRINT ★★☆
arc C.B.S. 1983 (r) scarce

A cute little game in which you must collect items to assemble a steam engine. Once assembled, you can shoot the bad guys who are chasing your girl at the top of the screen. Unusual, with features too numerous and weird to go into here. A good game for joystick contortionists.

BLUE THUNDER ★
arc Richard Wilcox Software 1984 (t) scarce

An abysmal horizontally scrolling 'shoot-em'up'. Originally released as 'Blue Thunder' and then bought up by Elite Software and re-named 'Airwolf' to cash in on the craze at that time. Hands up if you bought both without realising.

B.M.X. SIMULATOR ★★★
arc Codemasters 1986 (t) bud



A challenging and involving budget release which simulates a race between two B.M.X. bikers over many different courses. The on-screen view is an overhead one, with each player looking down on the well drawn courses and racers. Watch out for sharp bends, obstacles, hills, and of course the other player. Great fun, especially for two players, and that Ron Hubbard (remember him?) soundtrack is excellent.

BOULDERDASH ★★★★
arc First Star Software/ Prism Leisure 1984/ 1987 (t,d) bud/ mid

Brilliant. The gameplay and its intricacies are almost impossible to sum up in a few sentences. Rockford is after gems, but he must watch out for falling boulders. One of those rare arcade games which will appeal to the 'thinking' person as well as the joystick basher. Nice use of colour, exemplary scrolling and perfect sound. All in all, a sublime piece of software.

BOULDERDASH 2 ★★★☆
arc First Star Software/ Prism Leisure 1985/ 1987 (t,d) bud/ mid

More of the same from the talented First Star team. This time out each screen is a little harder and will require some logical thinking and experimenting to complete. There's the added bonus of an excellent title screen as well. I prefer 'Boulderdash', probably because it is a little easier.

BOUNTY BOB STRIKES BACK ★★★☆
plat U.S. Gold 1986 (t,d) bud

One of the best all-round platform games. 'Bob' is the sequel to the seminal 'Miner 2049'er'. There are 25 different screens to be jumped through, all brilliantly designed and nicely coloured. The high score and introductory screens are charming. Old computer magazines are chock full of hints and tips for this game.

BROADSIDES ★★★
strat S.S.I 1983 (d) full

If you fancy yourself as Commander of a ship in the days of sail, fighting the French, Spanish and Americans, then this game is for you. Game mechanics cover sailing, cannon loading and firing, wind, ship boarding and much more. Don't expect marvellous graphics, but do expect excitement and terrific playability. Easier to get into than most Strategic Simulations games.

BRUCE LEE ★★★
plat Datasoft/U.S. Gold 1985 (t,d) mid

'Bruce Lee' was one of the first beat 'em up games, yet it falls more easily into the platform game category, because of its emphasis on running, jumping and dodging through a multitude of screens. Nice graphics, very playable, and with a neat two player option.

BUBBLE TROUBLE ★★
arc Players Software 1987 (t,d) bud

One in a series of quickies from this budget software house. Full marks for originality, but none for long lasting interest. You're a bubble in a bath, trying to eat other smaller bubbles whilst dodging rubber ducks, spiders and hairbrushes(!). Players Software certainly know how to use the audio-visual capabilities of the Atari to good effect, but they waste their talents on games of little substance.

BUCK ROGERS ★☆
arc Sega 1982 (r) scarce

An average implementation of the old coin-op game, featuring most of the elements found in the original, but without the graphical treats. If you enjoy 3-D shoot'em ups you may like it, but don't pay too much for it and don't expect too much from it.

CAPTAIN STICKY'S GOLD ★★
arc English Software 1982 (t) mid

This game shines in the graphics and sound department, with some amazing opening music. Gameplay proves to be a little disappointing though. 'Sticky' tends to turn up on English Software compilations, so buy it in this form if you can (it makes a good budget game).

CARNIVAL MASSACRE ★☆
arc Thorn E.M.I./Creative Sparks 1983 (r) mid

Save everyone from the madman at the fair, and catch them as they fall from the big wheels and roller coasters. Sounds interesting, but the game turns out to be monotonous and dull. Average graphics and annoying continuous music may find you reaching for the 'off' switch after a short while.

CAVERNS ★★☆
arc Titan Software 1982 (t) scarce

'Caverns' is written in Basic, but don't let that detract you from what is a reasonably entertaining, tricky arcade game. You'll need nerves of steel as you guide your ship from one side of the screen to the other, through caverns, lazer fields, rock formations and gates. This one poses a tricky challenge for software hunters. Released in '82, I haven't heard or seen anything concerning it since '83.

CAVERNS OF ERIBAN ★☆
arc Firebird 1986 (t) bud

A shoot 'em up which owes a lot to 'Thrust' (also from Firebird). You pilot your ship through a cavern system in an attempt to deliver supplies to mining depots. However, the caverns have their own defence systems which blast away at you if you come near them. Average graphics and difficult game controls make 'Eriban' almost instantly forgettable.

CAVERNS OF KHAFKA ★★
plat Cosmi/Top Ten 1983/1987 (t) bud

This is a platform game with some of the smallest graphics I've ever seen on the XL/XE. The scrolling screen is cluttered with features (most of them hazards) and there is the usual plethora of objects to collect. Gameplay, however, remains like a hundred other platform games.

CAVERNS OF MARS ★★
arc Atari 1981 (t) bud

A patchy, unfinished look is the distinguishing feature of this old shoot 'em up. Basically, it's a vertically scrolling blast, with tons of baddies on screen at once. Once you've reached the bottom of the complex, you plant a time bomb and then you must get back out in the time provided. Exciting, but the poor graphics and sound generally dampen any appeal the game has.

CHIMERAH ★★
arc/adv Firebird 1986 (t) bud

Visually excellent game in which you are a robot charged with the task of exploring and then blowing up a large space ship. There are sixty-four detailed rooms to explore and lots of things you can pick up and make use of. The pause mode for 'Chimera' is a visual delight. The game's only letdown is that it moves too slowly.

CHOP SUEY ★★☆
arc English Software 1985 (t,d) mid

Programmer Adam Billyard generally did a good job on this martial arts simulation (he later did the much better 'Elektraglide', also for the Atari). In 'Chop Suey' you control a karate fighter and play against either the computer or another human opponent in an arena setting. There are only nine moves at your disposal (a bit of a limitation if you are used to International Karate's sixteen). Animation of the fighters is smooth enough, but the background graphics did need more detail.

CHOPLIFTER ★★
arc Broderbund 1982 (r) mid

Original when it was first released, but now showing its age somewhat. You control a helicopter in this horizontally scrolling shooter (a sort of laid back 'Defender'). Animation of the helicopter was praised highly back in '82, but now it would hardly merit consideration. The sound is awful, no doubt due to the fact that this was converted from the Apple computer (which has poor sound facilities).

CLAIM JUMPER ★★☆
arc Publisher unknown 1983 (t) scarce

Remember the old 'Outlaw' game of the late Seventies? Well, 'Claim Jumper' owes much to that, but it also contains a lot of new features, improved graphics and humorous sound effects. As well as shooting the other player, your cowboy sprite must watch out for tumbleweed and snakes. He must also collect gold bars and claim deeds which he can deposit at the local bank and assay office. Good fun, especially for two players.

CLIPPER ★★
strat Program Design Inc. 1983 (t) scarce

A rarely-seen piece of software which puts you in charge of a Clipper ship, delivering goods from East America to San Francisco by way of Cape Horn. Events to watch out for include storms, crew mutinies, running aground and a lot more. Although the game is written in Basic, some of the graphical displays (e.g. the bow of your ship) are quite pleasing. Overall though this one's a little short on substance and is too easy to complete.

CLOAK OF DEATH ★★☆
gr adv Bug Byte 1986 (t) bud

Okay adventure, written in Basic but with some machine code routines. Some of the pictures are good, and the plot (alone in a haunted house), although a little trite, does have a deal of atmosphere. If you can put up with the limitations of its parser, this one is worth getting if you like adventures.

COHEN'S TOWERS ★★
plat Datamost/Databyte 1986 (t) mid

This game has you playing the part of the Boss's nephew, delivering mail bags to the mail drops situated on various floor of an office building. There is plenty of jumping, climbing and dodging to do, and the game is reasonably addictive. Graphics and sound are adequate, nothing more.

COMPILATIONS

This is a list of the major compilation releases for the XL/XE together with the games they feature. Most of the games in the compilations have their own review elsewhere in this series.

ARCADE CLASSICS ★★☆
arc **Datasoft/U.S. Gold** **1986 (t,d)** **full**
Pole Position, Mr Do, Dig Dug, Pacman.

BLUE RIBBON GAMES DISK ★
arc **Blue Ribbon** **1986 (d)** **mid**
Nightmare Maze, Castle Assault, Screwball, Darts, Diamond Mine.

FOUR STAR COMPILATION 1 ★★★
arc **Red Rat** **1987 (t,d)** **mid**
Escape From Doomworld, Panic Express, Domain of the Undead, Laser Hawk.

FOUR STAR COMPILATION 2 ★★★☆
arc **Red Rat** **1987 (t,d)** **mid**
Screaming Wings, Crumble's Crisis, Disc Hopper, The Search.

FOUR GREAT GAMES 1 ★☆
arc **Tynesoft** **1987 (t,d)** **mid**
Jet Set Willy, Balloonacy, Wizard, Pengon.

FOUR GREAT GAMES 2 ★★
arc **Tynesoft** **1987 (t,d)** **mid**
Mouse Trap, Who Dares Wins 2, Killa Cycle, Spacehawk.

GREATEST HITS 1 ★★☆
arc **Databyte** **1986 (t,d)** **full**
Astro Chase, Flip 'n Flop, Bristles.

PLATFORM PERFECTION ★★★★
arc **U.S. Gold** **1987 (t,d)** **mid**
Bounty Bob Strikes Back, Zorro, Bruce Lee, Ghost Chaser.

SHOOT 'EM UPS ★★★
arc **U.S. Gold** **1987 (t,d)** **mid**
Dropzone, Fort Apocalypse, Super Zaxxon, Blue Max 2001.

SMASH HITS 1 ★★★
arc **English Software** **1984 (t,d)** **mid**
Jet Boot Jack, Dan Strikes Back, Hyperblast, Captain Sticky's Gold, Firefleet.

SMASH HITS 2 ★★☆
arc **English Software** **1985 (t,d)** **mid**
Jet Boot Jack, Stranded, Diamonds, Robin Hood, Citadel Warrior.

SMASH HITS 3 ★★★
arc **English Software** **1985 (t,d)** **mid**
Airstrike 2, Batty Builders, Neptune's Daughter(?), Breath of the Dragon, Jet Boot Jack.

SMASH HITS 4 ★★☆
arc **English Software** **1986 (t,d)** **mid**
Chop Suey, Hijack, Kissin' Cousins, Firechief.

SMASH HITS 5 ★★★
arc **English Software** **1986 (t,d)** **mid**
Chop Suey, Elektraglide, Mediator, Quasimodo.

SMASH HITS 6 ★★★
arc **English Software** **1986 (t,d)** **mid**
Elektraglide, Timeslip, Fort Apocalypse, Drelbs.

SPOT THE BALL ★★☆
arc **Creative Sparks** **1986 (t,d)** **mid**
Soccer, Snooker.

COLLAPSE ★☆
strat **Firebird** **1986 (t)** **bud**
One of Firebird's first (and worst) releases for the Atari. The game screen is made up of a grid of sticks and bridges and you hop around the screen trying to change all the grey sticks to blue. Then you must make them collapse on top of one another. Fairly poor graphics and functional sound abound in 'Collapse'.

COLONIAL CONQUEST ★★★★
strat **S.S.I.** **1985 (d)** **full**
Superb tactical game modelled on the likes of 'Risk' and 'Diplomacy'. The scene is either the late 19th Century or the eve of the outbreak of World War I (you have the choice). The objective is to invade and colonise other countries, whilst defending your own territory from the six other players (human or computer). With several humans playing, the fun increases because you can have diplomacy sessions and double dealing etc. Graphics are blocky but colourful and the game system is easy to pick up and a joy to interact with.

COLONY ★★☆
strat **Mastertronic** **1987 (t)** **bud**
Interesting little game in which you take the part of a robot who must look after and organise a space colony. Things to keep you occupied include ordering goods, erecting fences, growing food, killing alien invaders etc. Graphics and sound are run of the mill, but the gameplay of 'Colony' is involving and unique. One to consider.

COLOURSPACE ★★★
ut **Llamasoft** **1985 (t)** **mid**
Another of Jeff Minter's weird and wonderful creations. 'Colourspace' is described, quite rightly, as a light synthesiser. With it you can create a whole barrage of Kaleidoscope-like effects. It's not a game, in fact it doesn't really fit into any category, but if you fancy creating colourful visual patterns/effects (maybe to music) then this piece of software will be for you.

TO BE CONTINUED

WRITING ADVENTURES

In this, the third article of a four-part series describing the programming of text adventures, the complete listing in Basic is given of my "MetMan" adventure.
The program code is compatible with the following computer languages: Atari Basic, Turbo Basic and the Turbo Basic compiler, the last two being public domain programs available (only on disk) directly from New Atari User. The same code is used for all three versions.
The Atari Basic version runs the slowest of the three, and there is an irritating delay of about 1 - 2 seconds while each action entered by the player is processed. Turbo Basic operates at roughly three times the speed of Atari Basic, and this is perfectly acceptable. The compiled version appears to run about as fast as a 'proper' machine code adventure; actually it runs about ten times faster than Atari Basic.

PROGRAM ECCENTRICITIES

The need to provide an adventure program common to Atari Basic and the Turbo Basic compiler has resulted in a few peculiarities in the program code. Note, for example, the combination of lines 50 and 200. This type of problem will be discussed in the fourth article (next issue).
Lines 8005, 8085, 8205 and 8255 have REMarks saying "ONLY FOR COMPILER". In fact, it won't do any harm if you leave these lines in for the other Basic versions.
When you type in the DATA statements, be sure to type in the spaces as shown. Otherwise, the sentences will not be formatted correctly when printed onto the screen.
The problem of the POP command was discussed in the preceding article. Line 9155 illustrates the use of two POP commands to leap out of a double-nested subroutine after a command to QUIT. This is bad practice, but is intended to provide illustration of the use of the POP command.
In the first two articles, several points were illustrated with exemplary lines of code. In order to prevent the reader guessing too easily what is going on, some of the names of variables given earlier have been changed for "MetMan". For example, the original string ROOM$ has become A$.
The BREAK key has caused me a little conceptual difficulty. Atari's insensitive positioning of this key next to RETURN means that occasionally the player may unintentionally interrupt the game. In compiled Turbo Basic, this means the loss of the complete game status.
On the other hand, it should be possible for the reader to interrupt a tutorial program like "MetMan" in order to see what is happening. Accordingly, line 25005 disables the BREAK key. Leave this line in while playing the adventure, delete the line before examining the adventure.
In this connection, lines 30000 to 30020 are not used in the adventure at all. However, they do provide a means of checking program status in mid-game. You can do this by pressing the BREAK key (in Basic only), then type GOTO 30000. Finally, type CONT to continue the adventure (if you are lucky; depending on where the break occurred).
Naturally, this status check can not be used if the BREAK key is disabled. I would advise using the check routine only after you have completed the adventure.

SAVE/LOAD

"MetMan" permits the player to save and load part-completed games from disk. If you have a cassette player, replace the words "D:ADV.DAT" with "C:" in lines 9143 and 9313. Incidentally, cassette users will unfortunately not be able to use Turbo Basic, so they will have to endure a slightly slower program version.

PLAYING THE ADVENTURE

The introductory text in the program is, I hope, entirely self-explanatory. Type in two word commands (verb-noun) for action, but some one-word commands will be recognised. These include:
HELP, LOAD, SAVE, N, S, E, W, U, D, QUIT and INVEntory.
"MetMan" is a very easy adventure to play, being intended primarily as an introduction to the genre. It should be quite robust to erroneous input, having been well-tested during development by several players.
There are 36 mappable locations, although you do not need to enter them all to complete the game. Be sure to draw a map! These locations are somewhat lost within the huge, 300 element room array. The original intention was to provide a general framework into which larger adventures could later be introduced. However, 36 locations compares favourably with, say, the adventures of the Scott Adams series.

ES 3

In part 3 John White brings you a full adventure illustrating the concepts learned so far - you can study the listining and play the game!

```
CS 1 REM ################################
MF 2 REM #            METMAN            #
ZM 3 REM #       by John F. White       #
EF 4 REM #  Writing Adventures Series   #
SG 5 REM # ---------------------------- #
MV 6 REM # NEW ATARI USER - JUNE 1991   #
CY 7 REM ################################
NN 8 REM
OG 10 DIM A$(300),B$(100),CON(100),HID(10
   0),C$(500),VERB$(20),NOUN$(20)
QP 15 DIM VWORD$(500),NWORD$(500),MON$(25
   ),NN$(20),VV$(20),CODE$(4)
FV 20 A$(1)="Q":A$(300)="Q":A$(2)=A$
UE 30 START=115:PRESPOS=START:MONO=0:TURN
   =100:INV=2
TD 35 GOSUB 25000:REM ** INTRO **
JP 37 GOSUB 1500:REM ** MACHINE CODE ROUT
   INE **
HD 40 GOSUB 1000:REM INIT
XO 45 MESS=89:GOSUB 9996:INPUT B$
AA 50 Q=12000+(PRESPOS-100)*10:GOSUB 200
TL 60 GOSUB 2000:REM DESCRIPTION
TG 70 GOSUB 3000:REM CONTENTS
JA 80 GOSUB 5000:REM EXITS
MB 90 GOSUB 6000:REM INPUT
NL 100 GOSUB 7000:REM MOVE
LX 110 IF MONO>TURN THEN 19000
RA 150 GOTO 50
HD 200 GOTO Q
XH 999 REM ** INIT **
JA 1000 RESTORE 1400
CN 1010 READ B:IF B=-1 THEN 1040
LY 1020 A$(B,B)="0"
NK 1030 GOTO 1010
BR 1040 READ B:IF B=-1 THEN 1300
MW 1050 A$(B,B)="1"
PG 1060 GOTO 1040
AZ 1300 K=0:RESTORE 2200:GOSUB 1350
NK 1310 VWORD$=C$:VW=WW
DA 1320 K=1:RESTORE 3201:GOSUB 1350
DA 1330 NWORD$=C$:NW=WW:CC=J-1
KI 1340 CODE$=STR$(INT(RND(0)*1000)):RETU
   RN
YE 1350 C$="":I=1:J=1
IU 1360 READ B$:IF B$="-1" THEN WW=I-1:RE
   TURN
ER 1370 B$(LEN(B$)+1)="    ":B$=B$(1,4):R
   EAD B:B$(LEN(B$)+1)=CHR$(B):C$(LEN(C$)
   +1)=B$
GS 1375 IF K=1 THEN READ B:CON(J)=B:READ
   B:HID(J)=B
LY 1380 J=J+1:I=I+5:GOTO 1360
IM 1400 DATA 112,115,117,122,123,124,125,
   126,127,128,132,137,142,143,144,146,14
   7,148
ME 1410 DATA 151,152,155,158,161,164,165,
   166,167,168,171,172,176,181,182,183,18
   4,185,-1
HB 1420 DATA 125,124,126,144,146,155,165,
   172,181,185,-1
JT 1499 REM ** READ M/C DATA **
VH 1500 RESTORE 20000:I=0
IA 1510 READ A:IF A=-1 THEN RETURN
HI 1520 POKE 1536+I,A:I=I+1:GOTO 1510
LP 1999 REM **DESCRIPTION **
OB 2000 RESTORE 2000+PRESPOS
GW 2005 IF PRESPOS=164 AND LIGHT=0 THEN 2
   020
TM 2010 ? :READ B$:? :? B$:?
AG 2020 RETURN
AT 2112 DATA The boiler room,1
YR 2115 DATA Outside a large tall buildin
   g,2
BJ 2117 DATA The toilets,0
CD 2122 DATA The west end of a corridor,0
SE 2123 DATA In a long corridor,0
SI 2124 DATA In a long corridor,0
UP 2125 DATA In the reception foyer of th
   e Meteor- ological Office,3
SQ 2126 DATA In a long corridor,0
OO 2127 DATA The intersection of two long
    corridors,0
FY 2128 DATA The east end of a long corri
   dor. Dust lies everywhere,0
EZ 2132 DATA A low-slung ceiling with wir
   es         dangling,0
HM 2137 DATA Gleaming Walls reflect the p
   olished    floor of a narrow passage,0
AA 2142 DATA A bright cafeteria,0
WF 2143 DATA A narrow passageway,4
YR 2144 DATA A box cupboard,10
GX 2146 DATA A strong-room,0
KF 2147 DATA A right-hand turn,6
GB 2148 DATA A cloakroom lined with cloth
   ing,0
DK 2151 DATA A comfortable bar,0
QU 2152 DATA A room full of stacked furni
   ture,0
NZ 2155 DATA The Presenter's Office,0
TM 2158 DATA A north-bound corridor,0
SL 2161 DATA A room lined with a row of d
   ustbins,0
AF 2164 DATA A computer room with a hummi
   ng sound,7
ZZ 2165 DATA An office clean and spartan
   with       little visible,9
VC 2166 DATA A TV Studio extending as far
    as the    eye can see,8
GW 2167 DATA A dusty old room. Abandoned
```

continued

METMAN

```
   computer  tapes lie everywhere,0
WL 2168 DATA North end of a corridor,0
FH 2171 DATA Kitchens.,11
FX 2172 DATA Storage rooms,0
OO 2176 DATA Side office,0
VR 2181 DATA Another storage room. Piles
   of cartonsstrewn around,0
JH 2182 DATA Guard's restroom,0
TH 2183 DATA Back Exit,0
WE 2184 DATA Backyard,5
VO 2185 DATA A dilapidated old garage,0
CL 2200 DATA W  ,3,E  ,4,N  ,5,S  ,6,WEST
   ,3,EAST,4,NORTH,5,SOUTH,6,U  ,7,UP,7,D
   ,8,DOWN,8
IA 2210 DATA HIT,1,STRIKE,1,ATTACK,1,KILL
   ,1,BEAT,1,SCREAM,2,SAY,2,KICK,1
SE 2220 DATA TAKE,9,DROP,10,INVENT,11,CLI
   MB,12,DESCEND,8,ASCEND,7,HELP,13,SAVE,
   14,QUIT,15,EXAMINE,16,LOOK,16
KT 2230 DATA GO,17,KISS,18,LOCK,19,UNLOCK
   ,20,OPEN,21,CLOSE,22,SHUT,22,EAT,23,DR
   INK,24
GJ 2240 DATA LIGHT,25,UNLIGHT,26,RUB,27,I
   NSERT,28,JUMP,29,THROW,10,GIVE,10,PUT,
   28,TYPE,30,LOAD,31,I,11,-1
UK 2999 REM ** CONTENTS **
BR 3000 FOR I=1 TO CC
IJ 3005 IF PRESPOS=164 AND LIGHT=0 THEN 3
   020
WE 3007 IF CON(I)<>PRESPOS THEN 3020
QF 3010 RESTORE 3200+I:READ B$:READ B:IF
   B=5 THEN MON$=B$
NY 3015 IF B=10 THEN 3020
DS 3016 ? B$
LJ 3017 IF I=1 AND CON(17)=1 THEN MESS=77
   :GOSUB 9996:?
EX 3020 NEXT I
AK 3030 RETURN
DU 3199 REM ** NOUN,STATE,LOCTN,HIDDEN **
KO 3200 DATA 3200,1,1,0
NN 3201 DATA TORCH,1,1,0
JP 3202 DATA WHISKEY,1,1,0
WK 3203 DATA FRIDGE,2,172,0
VM 3204 DATA BUILDING,10,115,0
FN 3205 DATA TELEVISION,1,182,0
XD 3206 DATA COMPUTER,3,164,0
ZH 3207 DATA CUPBOARD,10,144,1
VI 3208 DATA SAFE (OPEN),2,146,2
TY 3209 DATA MONEY,1,0,0
QM 3210 DATA KEY,1,180,0
KI 3211 DATA SAUSAGE,1,142,0
ZX 3212 DATA BEERCAN,1,151,0
FA 3213 DATA CARTON,1,181,10
ZE 3214 DATA CHART,1,176,0
OO 3215 DATA CHAIR,1,152,0
SQ 3216 DATA TAPE,1,167,0
GH 3217 DATA BATTERY,1,185,0
GS 3218 DATA BUCKET,1,0,20
EA 3219 DATA UMBRELLA,1,165,0
VT 3220 DATA SNOW,1,1,0
VX 3221 DATA WALLS,10,137,0
UQ 3222 DATA GUARD,5,115,0
JO 3223 DATA BRIBED GUARD,3,1,0
IY 3224 DATA RECEPTIONIST,5,125,0
QH 3225 DATA CLEANER (TIRED),5,143,0
MA 3226 DATA CLEANER (SEATED),3,1,0
YD 3227 DATA TVCREW,5,166,0
PS 3228 DATA DOG,5,184,0
DT 3229 DATA DOG (SLEEPING),3,1,0
LT 3230 DATA PRESENTER,3,155,0
RP 3231 DATA DOOR (LOCKED),5,147,0
TW 3232 DATA DOOR (OPEN),3,1,0
LO 3233 DATA COMBINATION LOCK,5,165,0
BQ 3234 DATA CEILING,10,132,0
GW 3235 DATA TOILET,10,117,0
TT 3236 DATA BOILER,10,112,0
OJ 3237 DATA DUSTBINS,10,161,0
WA 3238 DATA BAR,10,151,0
SG 3239 DATA CAFE,10,142,0
OX 3240 DATA GARAGE,10,185,0
KP 3241 DATA YARD,10,184,0
QY 3242 DATA OFFICE,10,176,0
VJ 3243 DATA FOYER,10,125,0
IZ 3244 DATA WIRE,10,132,0
HF 3245 DATA EXTINGUISHER,1,128,0
SD 3246 DATA COAT,1,148,0
JE 3247 DATA KITCHEN,10,171,0
QQ 3248 DATA FIRE,5,171,0
GG 3249 DATA -1
VC 4999 REM ** EXITS ? **
YR 5000 X=PRESPOS:? :? "Some exits are: "
   ;
RL 5010 IF A$(X-1,X-1)<>"Q" THEN ? "W ";
RS 5020 IF A$(X+1,X+1)<>"Q" THEN ? "E ";
HX 5030 IF A$(X-10,X-10)<>"Q" THEN ? "S "
   ;
YS 5040 IF A$(X+10,X+10)<>"Q" THEN ? "N "
   ;
PB 5050 IF A$(X-100,X-100)<>"Q" THEN ? "D
   ";
LO 5060 IF A$(X+100,X+100)<>"Q" THEN ? "U
   ";
TI 5070 ? :RETURN
XY 5999 REM ** INPUT **
HL 6000 X=0:? :? :? "WHAT NOW? ";:INPUT B
   $
QD 6010 GOSUB 8000:REM **PARSER **
HB 6020 GOSUB 8200:REM **ASSESS INPUT **
DJ 6030 GOSUB 8500:REM ** ACTION **
KG 6070 IF A$(PRESPOS+X,PRESPOS+X)="0" TH
   EN 6080
WO 6072 MESS=56:IF A$(PRESPOS+X,PRESPOS+X
   )="1" THEN MESS=60:? MON$;" ";
OQ 6075 GOSUB 9996
QP 6076 GOTO 6000
GK 6080 LIGHT=0:IF CON(1)=0 AND HID(1)=17
    THEN LIGHT=1
BF 6090 RETURN
MT 6999 REM ** MOVE **
TR 7000 PRESPOS=PRESPOS+X
LA 7010 Q=CON(20):TEMP=CON(18):IF Q=172 O
   R (Q=1 AND TEMP=172) THEN 7030
IR 7020 MONO=MONO+1:IF CON(20)<>1 THEN MO
   NO=MONO+4
AO 7030 RETURN
TW 7999 REM ** PARSER **
MW 8000 K=USR(1536,ADR(B$),LEN(B$),ADR("
   "),1)
AK 8005 K=PEEK(1637):REM ONLY FOR COMPILE
   R
PU 8010 IF K=0 THEN VERB$=B$:NOUN$="":GOT
   O 8040
QC 8020 VERB$=B$(1,K)
JC 8030 NOUN$=B$(K+1,LEN(B$))
AS 8035 IF LEN(NOUN$)>2 AND NOUN$(1,1)="
   " THEN NOUN$=NOUN$(2,LEN(NOUN$)):GOTO
   8035
YQ 8040 NN$=NOUN$:VV$=VERB$
FY 8050 VERB$(LEN(VERB$)+1)="    ":VERB$=
   VERB$(1,4)
XN 8060 NOUN$(LEN(NOUN$)+1)="    ":NOUN$=
   NOUN$(1,4)
ZF 8080 K=USR(1536,ADR(VWORD$),LEN(VWORD$
   ),ADR(NOUN$),LEN(NOUN$))
BI 8085 K=PEEK(1637):REM ONLY FOR COMPILE
   R
BQ 8090 IF K<>0 THEN VERB$=NOUN$:NOUN$="
   "
AI 8100 RETURN
XA 8199 REM ** ASSESS INPUT **
CW 8200 ACTION=0:K=USR(1536,ADR(VWORD$),L
   EN(VWORD$),ADR(VERB$),LEN(VERB$))
AO 8205 K=PEEK(1637):REM ONLY FOR COMPILE
   R
SC 8210 IF K<>0 THEN ACTION=ASC(VWORD$(K+
   4,K+4))
GA 8240 ITEM=0:IF NOUN$="    " THEN STATE
   =10:RETURN
NI 8245 STATE=0:I=1
IK 8250 K=USR(1536,ADR(NWORD$),LEN(NWORD$
   ),ADR(NOUN$),LEN(NOUN$))
BD 8255 K=PEEK(1637):REM ONLY FOR COMPILE
   R
FN 8260 IF K<>0 THEN STATE=ASC(NWORD$(K+4
```

```
   ,K+4)):ITEM=INT(K/5)+1
BI 8280 RETURN
LW 8499 REM ** ACTION **
IC 8500 IF STATE=0 THEN MESS=50:GOSUB 999
   6:? NN$;" is":RETURN
YI 8505 ? "O.K. ":? :X=99:Q=ACTION*10+900
   0:GOSUB 200
ZC 8506 IF X=99 THEN MESS=79:GOSUB 9996:X
   =0
UC 8507 ? :RETURN
AG 9000 X=0:MESS=0:GOSUB 9996:? VV$;"' so
   mething":RETURN
TE 9010 X=0:MESS=1:GOSUB 9996:RETURN
WO 9020 X=0:? NN$:MESS=2:GOSUB 9996:RETUR
   N
AU 9030 X=-1:RETURN
AH 9040 X=+1:RETURN
NO 9050 X=+10:RETURN
OH 9060 X=-10:RETURN
CU 9070 X=+100:RETURN
DN 9080 X=-100:RETURN
QT 9090 X=0:IF CON(ITEM)<>PRESPOS THEN ME
   SS=51:GOSUB 9996:RETURN
YK 9092 IF STATE>2 THEN MESS=52:GOSUB 999
   6:RETURN
FO 9093 IF STATE=2 THEN MESS=59:GOSUB 999
   6:RETURN
WL 9094 IF INV>5 THEN MESS=53:GOSUB 9996:
   RETURN
HD 9095 INV=INV+1:CON(ITEM)=0:RETURN
UR 9100 X=0:IF CON(ITEM)<>0 THEN MESS=54:
   GOSUB 9996:RETURN
PW 9102 CON(ITEM)=PRESPOS:INV=INV-1
FD 9103 IF ITEM<>20 OR PRESPOS<>155 THEN
   9109
TS 9104 FOR K=72 TO 74:MESS=K:GOSUB 9996:
   NEXT K:MONO=TURN+1
LR 9105 ? :? :MESS=90:GOSUB 9996:? :GOTO
   9155
BT 9109 RETURN
LV 9110 X=0:MESS=55:GOSUB 9996:? :IF INV=
   0 THEN MESS=92:GOSUB 9996:?
XQ 9111 TEMP=PRESPOS:PRESPOS=0:GOSUB 3000
SA 9114 PRESPOS=TEMP
DT 9115 MESS=71:GOSUB 9996:? TURN-MONO;"
   turns"
BW 9119 RETURN
AP 9120 RETURN
JE 9130 X=0:RESTORE 2000+PRESPOS:READ B$:
   READ B
MI 9131 RESTORE 15000+B:READ B$:? B$
BA 9132 RETURN
PO 9140 X=0:MESS=88:GOSUB 9996:? :MESS=89
   :GOSUB 9996:INPUT B$
DC 9143 TRAP 9149:CLOSE #1:OPEN #1,8,0,"D
   :ADV.DAT"
VY 9144 ? #1;CC:C$=A$(1,150):? #1;C$:C$=A
   $(151,300):? #1;C$:? #1;CODE$
GZ 9145 FOR I=1 TO CC:? #1;CON(I):? #1;HI
   D(I):NEXT I:? #1;PRESPOS:? #1;MONO
HU 9149 CLOSE #1:TRAP 50:RETURN
BN 9150 X=0:MESS=15:GOSUB 9996
CX 9151 TRAP 9151:INPUT B$:IF B$(1,1)<>"Y
   " THEN 9159
RK 9155 POP :POP :GOTO 19040
NB 9159 TRAP 50:RETURN
TL 9160 X=0:IF CON(ITEM)<>PRESPOS AND CON
   (ITEM)<>0 THEN MESS=51:GOSUB 9996:RETU
   RN
GW 9162 MESS=57:IF HID(ITEM)>0 THEN MESS=
   58:CON(HID(ITEM))=PRESPOS:HID(ITEM)=0
BY 9163 IF ITEM=5 THEN MESS=83
EO 9164 IF ITEM=1 AND HID(1)<>17 THEN MES
   S=84
NX 9165 IF ITEM=14 THEN MESS=86
PW 9166 IF ITEM=19 THEN MESS=85
OS 9167 IF ITEM=24 THEN MESS=95
VK 9169 GOSUB 9996:RETURN
QP 9170 X=0:IF CON(ITEM)<>PRESPOS THEN ME
   SS=51:GOSUB 9996:RETURN
IC 9171 IF ITEM<>35 THEN X=99
BM 9172 RETURN
```

```
KK 9180 IF ITEM=24 THEN X=0:MESS=18:GOSUB
    9996:RETURN
BK 9190 RETURN
DH 9200 X=0:IF CON(10)<>0 THEN MESS=69:GO
   TO 9209
OZ 9201 CON(10)=PRESPOS:MESS=82
UU 9209 GOSUB 9996:RETURN
AO 9210 RETURN
AR 9220 RETURN
HL 9230 REM ** FALL THRO TO NEXT LINE
SZ 9240 X=0:IF CON(ITEM)<>PRESPOS AND CON
   (ITEM)<>0 THEN MESS=51:GOTO 9249
VN 9241 IF ITEM<>2 AND ITEM<>11 AND ITEM<
   >12 THEN MESS=75:GOTO 9249
DA 9242 MESS=24:CON(ITEM)=1
VG 9249 GOSUB 9996:RETURN
BA 9250 RETURN
BD 9260 RETURN
YA 9270 X=0:MESS=27:GOSUB 9996:RETURN
JG 9280 X=0:IF CON(ITEM)<>0 THEN MESS=54:
   GOSUB 9996:GOTO 9289
WW 9281 CON(ITEM)=PRESPOS
SH 9282 IF ITEM=17 AND CON(1)=0 THEN MESS
   =77:GOSUB 9996:CON(17)=1:HID(1)=17:INV
   =INV-1
QG 9283 IF ITEM=20 AND CON(18)=0 THEN MES
   S=91:GOSUB 9996:CON(20)=1:HID(18)=20:I
   NV=INV-1
CT 9289 RETURN
BM 9290 RETURN
YT 9300 X=0:MESS=79:IF NOUN$<>"COMB" THEN
    9309
PR 9301 MESS=80:GOSUB 9996:INPUT B$
FY 9302 IF B$<>CODE$ THEN MESS=81:GOTO 93
   09
DS 9303 MESS=82:GOSUB 11000
UW 9309 GOSUB 9996:RETURN
WX 9310 X=0:TRAP 9319
BQ 9312 MESS=87:GOSUB 9996:? :MESS=89:GOS
   UB 9996:INPUT B$
ZE 9313 CLOSE #1:OPEN #1,4,0,"D:ADV.DAT"
CM 9314 INPUT #1;CC:INPUT #1;A$:INPUT #1;
   C$:INPUT #1;CODE$
WZ 9315 FOR I=1 TO CC:INPUT #1;Q:CON(I)=Q
   :INPUT #1;Q:HID(I)=Q:NEXT I:INPUT #1;P
   RESPOS:INPUT #1;MONO
NE 9316 A$(LEN(A$)+1)=C$
HP 9319 CLOSE #1:TRAP 50:RETURN
SN 9995 REM ** SHOW **
UY 9996 RESTORE 10000+MESS
FV 9997 READ B$:? B$;" ";:RETURN
OB 9999 REM ** SHOW DATA **
ZQ 10000 DATA Sorry I don't know how to '
HI 10001 DATA I'd better not!
EV 10002 DATA Nothing happens
FQ 10015 DATA Do you really want to quit?
MS 10018 DATA Sir! You go too far.
EL 10023 DATA Ah that's better!
VI 10024 DATA Ah that tasted good!
DX 10027 DATA I'm not Aladdin - nothing h
   appened.
PW 10050 DATA I don't know what a
WO 10051 DATA I don't see it here!
PW 10052 DATA I can't do that!
VP 10053 DATA I'm carrying too much. Take
    INVENTory.
LC 10054 DATA I'm not carrying it!
DD 10055 DATA I am carrying...
ZJ 10056 DATA Sorry but I can't go in tha
   t direction
MW 10057 DATA I see nothing special
EP 10058 DATA I see something!
WG 10059 DATA It's too heavy!
XE 10060 DATA won't let me pass
VH 10061 DATA Thank you Sir. That will do
    nicely
BJ 10062 DATA Receptionist turns away blu
   shing
IZ 10063 DATA It's very hot in here!
QS 10064 DATA The snow is melting
AG 10065 DATA That's very kind of you dea
   rie
```

METMAN

```
GI 10066 DATA Thanks pal. We're off now.
XV 10067 DATA The computer flickers into
   life!
ZX 10068 DATA The combination number is
GI 10069 DATA First I need a key!
XR 10070 DATA Dog eats sausages and falls
   asleep
DV 10071 DATA Snow will be melted in
AQ 10072 DATA The snow falls with a sicke
   ning plop  onto the presenter's head
KE 10073 DATA and runs in freezing dribul
   ets over his hair and  head and shrink
   s his
VR 10074 DATA Saville Row suit into a cru
   mpled sodden mess.
ML 10075 DATA What a horrible idea!
HQ 10076 DATA The snow is in the fridge
LH 10077 DATA The torch is now working
DY 10078 DATA IT'S TOO DARK TO SEE!
NZ 10079 DATA I don't understand you
BH 10080 DATA Type in combination number
WD 10081 DATA Wrong number
ZF 10082 DATA The door swings open!
AI 10083 DATA There appears to be some ki
   nd of weather forecast showing.
DN 10084 DATA Torch needs a battery
AC 10085 DATA It's still dripping wet!
EH 10086 DATA Chart says: 'Drop snow in f
   ridge to   keep it from melting'
IT 10087 DATA TURN ON DISK DRIVE; INSERT
   DISK WITH  SAVED GAME
HD 10088 DATA TURN ON THE DISK DRIVE; INS
   ERT A BLANKDISK
PM 10089 DATA PRESS RETURN WHEN READY
MT 10090 DATA CONGRATULATIONS!! This game
    is now    over.
PX 10091 DATA The snow is back in the buc
   ket
NT 10092 DATA Nothing at all!
SJ 10093 DATA Nothing happens! It's empty
   !
VH 10094 DATA The coat falls on the flame
   s and smothers the fire
BP 10095 DATA SLAP!!!
UD 10999 REM ** PASS PROTECTION **
OY 11000 IF A$(PRESPOS-1,PRESPOS-1)="1" T
   HEN A$(PRESPOS-1,PRESPOS-1)="0"
CI 11010 IF A$(PRESPOS+1,PRESPOS+1)="1" T
   HEN A$(PRESPOS+1,PRESPOS+1)="0"
IO 11020 IF A$(PRESPOS+10,PRESPOS+10)="1"
    THEN A$(PRESPOS+10,PRESPOS+10)="0"
VY 11030 IF A$(PRESPOS-10,PRESPOS-10)="1"
    THEN A$(PRESPOS-10,PRESPOS-10)="0"
SM 11040 IF A$(PRESPOS+100,PRESPOS+100)="
   1" THEN A$(PRESPOS+100,PRESPOS+100)="0
   "
GI 11050 IF A$(PRESPOS-100,PRESPOS-100)="
   1" THEN A$(PRESPOS-100,PRESPOS-100)="0
   "
DX 11060 RETURN
GN 12000 REM ** ROOM SPECIFICS **
NW 12120 MESS=63:GOSUB 9996
BD 12121 Q=CON(20):TEMP=CON(18):IF Q=PRES
   POS OR Q=0 THEN 12125
GO 12122 IF Q=1 AND (TEMP=0 OR TEMP=PRESP
   OS) THEN 12125
EQ 12123 GOTO 12129
DG 12125 MONO=MONO+10
FF 12129 RETURN
TA 12150 IF CON(9)<>PRESPOS THEN 12159
MR 12151 TEMP=CON(22):CON(22)=CON(23):CON
   (23)=TEMP:CON(9)=1
ZF 12152 GOSUB 11000:MESS=61:GOSUB 9996
FR 12159 RETURN
FW 12170 IF ACTION=17 AND ITEM=35 THEN ME
   SS=23:GOSUB 9996
DP 12220 RETURN
DT 12230 RETURN
DX 12240 RETURN
GP 12250 IF ACTION=18 AND ITEM=24 THEN GO
   SUB 11000
XP 12251 IF A$(PRESPOS-1,PRESPOS-1)="0" T
   HEN MESS=62:GOSUB 9996
EL 12252 RETURN
EF 12260 RETURN
EJ 12270 RETURN
EN 12280 RETURN
DS 12320 RETURN
EM 12370 RETURN
DV 12420 RETURN
UG 12430 IF CON(15)<>PRESPOS THEN 12439
ZV 12431 MESS=65:GOSUB 9996:CON(15)=1:TEM
   P=CON(25):CON(25)=CON(26):CON(26)=TEMP
LQ 12432 GOSUB 11000
FS 12439 RETURN
ED 12440 RETURN
EL 12460 RETURN
XJ 12470 IF CON(10)<>PRESPOS THEN 12479
TK 12471 GOSUB 11000:TEMP=CON(31):CON(31)
   =CON(32):CON(32)=TEMP:CON(10)=1
GI 12479 RETURN
ET 12480 RETURN
DU 12510 RETURN
DY 12520 RETURN
EK 12550 RETURN
GD 12559 RETURN
EW 12580 RETURN
DX 12610 RETURN
IL 12640 IF LIGHT=0 THEN MESS=78:GOSUB 99
   96:GOTO 12649
ZY 12644 IF CON(16)<>PRESPOS THEN 12649
XR 12645 MESS=67:GOSUB 9996:? :MESS=68:GO
   SUB 9996:? CODE$
GC 12649 RETURN
EN 12650 RETURN
XQ 12660 IF CON(2)<>PRESPOS THEN 12669
PU 12661 GOSUB 11000:MESS=66:GOSUB 9996:C
   ON(27)=1:CON(2)=1
GK 12669 RETURN
EV 12670 RETURN
EZ 12680 RETURN
YW 12710 IF CON(48)<>PRESPOS THEN 12719
XT 12711 IF CON(45)=PRESPOS THEN MESS=93:
   GOSUB 9996
DD 12712 IF CON(46)=PRESPOS THEN MESS=94:
   GOSUB 9996:GOSUB 11000:CON(48)=1
FT 12719 RETURN
FS 12720 Q=CON(20):TEMP=CON(18):IF Q<>PRE
   SPOS AND (Q<>1 OR TEMP<>PRESPOS) THEN
   12729
FU 12721 MESS=76:GOSUB 9996:MONO=MONO-1
JE 12722 IF MONO>100 THEN MONO=100
FX 12729 RETURN
EU 12760 RETURN
ED 12810 RETURN
EH 12820 RETURN
EL 12830 RETURN
ZD 12840 IF CON(11)<>PRESPOS THEN 12849
JI 12841 GOSUB 11000:MESS=70:GOSUB 9996:T
   EMP=CON(28):CON(28)=CON(29):CON(29)=TE
   MP
MX 12842 CON(11)=1
GI 12849 RETURN
ET 12850 RETURN
KX 14999 REM ** HELP TEXT **
KN 15000 DATA Try exploring and examining
    things
GI 15001 DATA Get out before the ice melt
   s!
CR 15002 DATA Guards are poorly paid
PG 15003 DATA Try getting very friendly
RF 15004 DATA Perhaps she wants to sit do
   wn?
AH 15005 DATA Savage dogs are often poorl
   y fed
RQ 15006 DATA You need a key
HF 15007 DATA Computers need tapes
WZ 15008 DATA Journalists are hard drinke
   rs
VF 15009 DATA Try 'TYPE COMBINATION'
HY 15010 DATA Examine cupboard?
UQ 15011 DATA Smother the fire
GG 18999 REM ** EXIT **
GN 19000 ? "The snow has all melted away"
```

```
RS 19010 ? "There doesn't seem to be much
     point inhanging around."
NQ 19020 ? :? "In any case, two large bur
     ly security guards have just arrived t
     o sort me   out!"
KF 19030 ? :? "HELP!!!!!"
LL 19040 ? :? "ANOTHER GAME (Y/N)? ";:INP
     UT B$
RM 19050 IF B$="Y" THEN RUN
YY 19060 IF B$<>"N" THEN GOTO 19040
ZA 19070 END
MS 20000 DATA 104,104,133,243,104,133,242
     ,104,104,141
ZK 20010 DATA 97,6,104,133,241,104,133,24
     0,104,104
LX 20020 DATA 141,98,6,169,0,141,99,6,141
     ,100
US 20030 DATA 6,172,99,6,204,97,6,176,46,
     177
KH 20040 DATA 242,172,100,6,209,240,208,2
     7,238,99
NW 20050 DATA 6,238,100,6,173,100,6,205,9
     8,6
DI 20060 DATA 48,225,238,99,6,173,99,6,56
     ,237
PF 20070 DATA 98,6,76,87,6,169,0,141,100,
     6
YG 20080 DATA 238,99,6,208,202,169,0,133,
     212,141
QI 20090 DATA 101,6,169,0,133,213,96,0,0,
     0
DW 20100 DATA 0,-1
EZ 24999 REM ** INTRODUCTION **
BA 25000 RESTORE 25000:GRAPHICS 0
BO 25005 POKE 16,64:POKE 53774,64:REM DIS
     ABLE BREAK
SF 25010 READ C$:IF C$="-1" THEN 25030
TY 25020 ? C$:GOTO 25010
```

```
DU 25030 RETURN
HS 25040 ? " PRESS RETURN TO CONTINUE";:I
     NPUT B$:RETURN
ZL 25090 DATA MET - MAN - An adventure by
      John White
UV 25100 DATA On Friday I listened to the
      weather   forecast.
OC 25110 DATA It predicted bright sunshin
     e.
RK 25120 DATA On Saturday I went out for
     a picnic.
QD 25130 DATA It SNOWED!
YZ 25140 DATA Today -Sunday- I am standin
     g in front of the Met Office clutching
      a bucket  of snow.
SW 25150 DATA Which I am going to dump on
      the       presenter's head.
QI 25160 DATA You'll direct me through th
     e labyrinthof the Met Office to find t
     he         presenter.
KA 25170 DATA But he's well-guarded - I'm
      not the   only one with a complaint.
GR 25180 DATA *    *    *    *    *    *
        *    *
CL 25190 DATA Enter two-word commands to
     move me.
SI 25200 DATA Some words I usually know a
     re:
YZ 25210 DATA TAKE/DROP/INVENTORY/HELP
YH 25220 DATA You'll have to find the oth
     ers!
DJ 25230 DATA ,-1
DI 30000 ? "ITEM","LOCTN","NAME","HIDDEN"
     :FOR I=0 TO CC
ES 30010 ? I,CON(I),:RESTORE 3200+I:READ
     B$:? B$,HID(I)
FT 30020 NEXT I
```

THE SOLUTION

I hope that you enjoy playing "MetMan", but for those who get stuck a complete solution is provided in coded form.

The key to decoding is this:

Start at the bottom right of the text and work backwards towards the top, replacing each letter with the one before it in the alphabet. For example, OBDSFFC FOJNBYF would translate as EXAMINE BEERCAN.

For lazy readers, a simpler alternative is provided. Type in all the solution given below into "AtariWriter", save the text as "CLUE.TXT", then return to Basic and enter and RUN the program "SOLUTION.BAS", below.

This will save a new file "SOLUTION.TXT" to disk. Return to AtariWriter, load in SOLUTION.TXT, and read off the solution normally.

The last article of this series will look at advanced programming techniques and some programming aids.

XPOT QPSE - XPOT FLBU - UFLDVC NBYF - T - (SFCNVO OPJUBOJCNPD SFUOF) - OPJUBOJCNPD FQZU - F - (SFCNVO OPJUBOJCNPD UFH) - FQBU USFTOJ - X - X - ZFLTJIX FWJH - X - FQBU FLBU - X - O - O - F - F - ZFLTJIX FLBU - FGBT NBYF - X - SPPE LDPMOV - O - O - F - F - F - F - F - T - T - X - X - ZSFUUBC USFTOJ - IDSPU FLBU - ESBPCQVD NBYF - F - SJBID FWJH - F - T - SJBID FLBU - F - T - T - T - X - X - X - X - ZSFUUBC FLBU - F - FHBTVBT FWJH - F - F - F - ZFL FLBU - OPUSBD NBYF - O - UBPD QPSE - O - O - X - O - FHBTVBT FLBU - O - O - X - X - X - X - X - T - T - X - UBPD FLBU - F - O - O - F - F - UTJOPJUQFDFS TTJL - O - ZFOPN QPSE

WARNING - "METMAN" CONTAINS MACHINE CODE ROUTINES. BE SURE TO SAVE THE PROGRAM BEFORE RUNNING IT

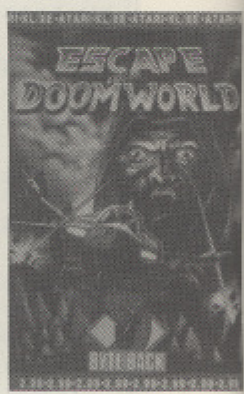
```
CS 1 REM ################################
GA 2 REM #         SOLUTION             #
ZM 3 REM #      by John F. White        #
EF 4 REM #  Writing Adventures Series   #
SG 5 REM # ---------------------------- #
MV 6 REM # NEW ATARI USER - JUNE 1991   #
CY 7 REM ################################
NN 8 REM
QM 100 REM
VF 110 DIM A$(1000),B$(1000)
UA 120 A$="":CLOSE #1:OPEN #1,4,0,"D:CLUE
     .TXT"
MV 130 TRAP 170
OZ 140 GET #1,B:B$=CHR$(B)
WF 150 A$(LEN(A$)+1)=B$
NK 160 GOTO 140
OQ 170 B$="":FOR I=LEN(A$) TO 1 STEP -1
CE 180 B$(LEN(B$)+1)=A$(I,I)
GJ 190 NEXT I
FN 200 CLOSE #1:OPEN #1,8,0,"D:SOLUTION.T
     XT"
KR 210 FOR I=1 TO LEN(B$)
PP 220 A=ASC(B$(I,I)):IF A>64 AND A<91 TH
     EN A=A-1
HJ 230 PUT #1,A
GA 240 NEXT I
LI 250 CLOSE #1
```

BUDGET DELI

BYTE BACK STILLS CARES A







Have you considered abandoning your 8-bit to buy an ST? You may be surprised to learn that many people, having spent hundreds of pounds on Atari's latest hardware, have been quite disappointed with the quality of many ST games. Dozens of colours and digitised noises are pleasant, but they don't necessarily make a brilliant game. What about playability, addictiveness and lasting appeal? These characteristics seem more prevalent in 8-bit games than in those produced for the ST, and the latter may cost ten times more, so why upgrade? The problem is that most software companies have chosen to concentrate their efforts where they perceive the greatest profits lie, leaving thousands of disillusioned XL/XE owners with very little to purchase.

Fortunately, help is at hand. Over the past few months a company called Byte Back have published over ***TWENTY*** different 8-bit games, and the range continues to expand. As well as releasing a few original titles, Byte Back have acquired the rights to re-release some of the top runners of the eighties. In fact, there's never been a better opportunity to obtain so much great entertainment so cheaply - you could buy the complete collection for less than the cost of three full-priced ST packages! It is of course vitally important to encourage companies such as Byte Back to maintain an interest in the 8-bit market. All you have to do is buy the software! With your support, but not without it, there should be many more bargain oldies to enjoy, and hopefully some original releases too. The future could be rosy! In case you're not convinced, let's take a brief look at a selection of the goodies on offer so far.

By far the oldest game in the series is Jon Williams' **JET BOOT JACK**. This became an instant hit as one of the first releases from English Software, who went on to become a prolific source of 8-bit material. It's an amusing ten-screen platform game based upon the exploits of space-age jogger Jack in a record pressing plant! He wants to amass the greatest music collection in the world by retrieving musical notes from the factory, but bugs and gremlins are out to stop him. There are lifts and conveyors to contend with whilst Jack's revolutionary jet-powered boots must be re-fuelled at regular intervals. The graphics are excellent and the sonics almost equally so. Jet Boot Jack is still one of the best platform games around.

Jon Williams was also responsible for **TIMESLIP**, though unlike his previous achievement this one didn't receive a great deal of publicity - perhaps because it's rather difficult to describe! The idea is that a distant planet is in 'timeslip' and to put things straight you must collect a number of time orbs from each of its three time zones. The display is split vertically into three scrolling scenarios - the planet's surface, underground caverns (JBJ makes an appearance here!) and sub-aqua - which you can choose to tackle in any order, but strict time limits are imposed. The graphics are great! Watch out for a full review coming soon in New Atari User (once I've figured out how to explain it!).

The bulk of Byte Back's games originate from Red Rat, who emerged as the leading Atari publisher after English Software left the arena. **LASER HAWK** is a brilliant Scramble clone by Andrew Bradfield and Harvey Kong Tin, who later produced the incredible Hawkquest. The original plot spoke of bombing the headquarters of the evil 'Proc Irata' (backwards?) and rival computer manufacturers, but Byte Back have amended the target descriptions to 'hi-tec industrial centres' producing suspicious household invaders (I wonder why?). As before your aim is to negotiate air cannons, robot ships, volcano eruptions, missile launchers, laser beams and countless other obstacles in order to destroy the baddies. Naturally, both graphics and sound effects are first class.

In **ESCAPE FROM DOOMWORLD** a group of scientists are being held captive on the planet Doomworld and it's your intention to save them. The task comprises three distinct stages, the first of which is a platform game involving the collection of energy cells and several other artifacts. Next you must rescue the stranded scientists, 'Choplifter' fashion, before dropping them back at base. Finally you have to chase after three bombs which are subsequently used to destroy Doomworld, thereby completing the mission.

For shoot 'em up fanatics, **DREADNAUGHT** is a submarine adaptation of the famous arcade hit Defender. Basically it's a two-way horizontal scroller featuring multiple waves of alien craft whose objective is YOUR destruction - so you'd better zap them first! Visual delights include well-animated players, an intricate status panel and a brilliant explosion of particles when you're hit by an alien missile.

Next question - are you brave enough to tackle the dangers of Evil Otto's dungeons? If so, then grab a copy of **ROBOT KNIGHTS.** In this platform game you're required to prevent Otto unleashing his monstrous creation to destroy the Futureworld. As a distinguished knight you must battle through the nine rooms of Otto's hideout, avoiding deadly Zombies and other nasties whilst accumulating energy and treasure. You're equipped with a handy deflector shield to fend off fire balls, which is just as well as any contact has a severe effect on your energy reserve - careful or you could literally lose your head!

You may recall that **NIGHTMARES** caused quite a stir when a certain distributor (well known for keeping a massive mailing

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ES ABOUT YOUR ATARI













by Paul Rixon

list but never mailing anyone!) decided it wasn't suitable for the general public. It was clearly a ludicrous notion since the game is simply an unusual shoot 'em up featuring a host of superbly drawn monstrosities. Your job is to collect radiant insects called Airflits and destroy hideous creatures including demons, werewolves and 'Monkoids'. Graphically, the overall impression is one of great attention to detail.

SPACE LOBSTERS is the unlikely title of an arcade adventure centred on space hero Captain Crumble's attempts to salvage the huge colony-ship Colossus, which is drifting helplessly through the Universe. The problem is that the ship is swarming with Robo Droids and newly hatched Space Lobsters, and oddly enough human flesh is their favourite diet! Brilliant music, good graphics and an amusing theme contribute towards an eminently playable game.

Other ex-Red Rat hits to look out for include the excellent '1942' clone **SCREAMING WINGS**, the visually stunning rally simulator **SPEED RUN** and the exceedingly addictive **CRUMBLE'S CRISIS** (coming soon, we're told).

On a less frivolous note, a couple of recent additions to the series are **FIGHTER PILOT** and **TOMAHAWK** from Digital Integration. Flight simulations are hardly an obvious choice for "budgetisation" since they're usually supplied with extensive manuals, charts and other extras. Byte Back have somehow managed to condense everything you need to know (I hope!) onto the cassette inlay which would suggest a fair amount of experimentation may be necessary. FIGHTER PILOT was originally criticised for its fiddly 'Lenslok' protection gadget which involved positioning a plastic lens against the screen to reveal an authorisation code. The good news is that now you're allowed to climb straight into the cockpit without all the hassle. Once there, you can experience landings, normal flying and air-to-air combat - in practice mode for beginners or with fog and crosswinds for expert pilots. With no fog, the graphics are excellent!

TOMAHAWK is a follow-up simulation based upon the AH-64A Apache advanced attack helicopter. The controls take some perseverance but it's well worth the effort as you would otherwise miss the brilliant 3-D graphics, featuring more than 7000 ground objects! Once proficient in the basics you can embark on increasingly challenging missions to liberate the map from enemy occupation. A detailed review of Tomahawk in PAGE 6 #35 described it as 'a first rate, quality program offering real challenge ... and lots of excitement'. What more can I say?

THE BYTE BACK RANGE (SO FAR)

ASTRODROID
COSMIC PIRATE
DOMAIN OF THE UNDEAD
ESCAPE FROM DOOMWORLD
EXPLODING WALL
FIGHTER PILOT
JET BOOT JACK
LASER HAWK
LITTLE DEVIL
MAD JAX
NIGHTMARES
PLANET ATTACK
ROBOT KNIGHTS
ROULETTE SIMULATOR
SCREAMING WINGS
SPACE LOBSTERS
SPACE WARS
SPEED RUN
TIMESLIP
TOMAHAWK
WAR COPTER

Others may have been released since the above list was compiled. The games are priced at £2.99 each and are available on cassette only, directly from Byte Back (Tel. 0536 771429) or from most 8-bit Atari dealers.

PAGE 6 WRITER

A Word-Processor For Atari XL/XE Computers

by Phil Cardwell

There will be users in the Atari community, who have never used a word-processor. One of the many reasons for this could be the expense of buying a commercial product. Now they have no excuse, because Page 6 Writer is a more or less complete type-in word-processor, based around one or two commercial/public-domain programs.

BASIC USE

After loading Page 6 Writer the screen colours become white text on a black background with a blue bar at the top of the screen. This bar is the command line and will display various messages and prompts. Below the command line are a further 18 lines which is known as the 'text area'. This space is used for entering and editing your document.

To start using Page 6 Writer all you have to do is begin typing. When the cursor reaches the right hand side of the screen it naturally goes back to the left hand side, one line down. If a word was being typed at that time, that too is moved to the next line. This is called word-wrap and retains a degree of readability in your document. When the cursor reaches the bottom right hand corner of the text area, the screen automatically scrolls the text upwards to make way for a new line.

TYPING IT IN

Listing 1 is the BASIC program and should be typed in using TYPO 3 to check each DATA line. The listing is a touch on the long side, so I would suggest you type it in, in two or three sittings. Believe me the effort you make will be more than worthwhile.

When the program is RUN an AUTORUN.SYS file will be created on disk which will be loaded every time the disk is booted.

When LOADing the program OPTION does not necessarily have to be held down to disable BASIC. The only difference this makes is that you will get an extra 8K of editing space.

EDITING FUNCTIONS

The editing features built into Page 6 Writer vary slightly from the normal Atari editing functions, but this should not present too many problems.

CTRL +	- Moves the cursor one space to the left
CTRL *	- Moves the cursor one space to the right
CTRL -	- Moves the cursor to the beginning of the previous sentence
CTRL =	- Moves the cursor to the beginning of the next sentence
SHIFT +	- Moves the cursor to the beginning of the previous word
SHIFT *	- Moves the cursor to the beginning of the next word
SHIFT -	- Moves the cursor to the beginning of the previous paragraph
SHIFT =	- Moves the cursor to the beginning of the next paragraph

To insert a single space use **CTRL-Insert.** A better idea if you want to type in several words is to use **SHIFT-Insert** as this will insert 255 spaces. A single character or space can be deleted by using **CTRL-Delete**. The effect of **SHIFT-Delete** instantly deletes all spaces between the cursor and the beginning of the next word.

To quickly move the cursor to the top of the screen, press **CTRL-H**. If the cursor was already at the top left corner of the screen then you will returned to the top of your document. Similarly to get to the end of your document rapidly, press **CTRL-E**.

To delete a block of text, press **CTRL-D** and the command line will turn red and display the message "ERASE (S,W,P): RETURN to exit.". Each time you press S, W or P all text from the cursor position to the end of the Sentence, Word or Paragraph will be deleted. To exit this mode press the RETURN key. If the **OPTION** key is held down when you press **CTRL-D**, all text from the cursor position to the *beginning* of the sentence, word or paragraph will be deleted.

When you use the CTRL-D function, the text you have just deleted isn't completely lost. It is moved to what is known as

the 'Delete Buffer'. This prevents you from accidentally erasing too much text and then having to re-type it all. By pressing **CTRL-R** the contents of the Delete Buffer will be inserted at the current cursor position. The CTRL-R function can be used until the "Memory Full" message appears, and can be used as a very simple cut-and-paste facility to create data tables, etc.

The Delete Buffer is cleared every time CTRL-D is used.

CTRL-I controls the Insert/Typeover toggle and defaults to Insert mode when Page 6 Writer is first run. In typeover mode the command bar will turn black as a warning.

If at any time you feel that your document does not come up to scratch, press either **SHIFT-Clear** or **CTRL-Clear**. The command line again turns red and displays the message "ERASE ALL TEXT: Are You Sure (Y/N)?". Confirm this by pressing 'Y' or abort it by any other keypress. Once an erase-all text operation has been completed there is no way to restore it at all.

DISK USAGE

A document can be saved or recalled to/from disk or cassette at any time.

To save your text, press **CTRL-S** and the message "Save (Device:Filename)>" appears on the command line. At this point type D:FILENAME.EXT and press RETURN. If the SAVE is successful the message "No Errors" will appear on the command line, otherwise the "Error #xxx" message will be displayed.

To load a document into memory, use **CTRL-L**. The message "Load (Device:Filename)>" is shown on the command line. As with the save command type D:FILENAME.EXT and hit RETURN. If the command line turns green when you press CTRL-L that the existing text will not be wiped out of memory, and the filename of the document you give will be inserted at the current cursor position.

DOS FACILITIES

There is an integral mini-DOS menu built in to Page 6 Writer, the idea for which was derived from the public domain word-processor TextPro. Access to the menu is gained by pressing **CTRL-M**, which displays the directory of the current default disk drive.

The first noticeable thing about this menu is that the entire directory of a single density disk can be displayed. However in order to achieve this the sector count of each file is missing. When called, this menu highlights the filename in the top left-hand corner. The highlight bar can be move to any of the filenames by using the cursor arrow keys, but there is no need to hold CONTROL down as well.

ESC - Will exit the menu and return you to your document
CTRL-L - Loads the highlighted file into the word processor. Any existing document will be overwritten
CTRL-D - Deletes the highlighted filename
F - Formats the disk in the default drive. There is a confirm prompt to this option
L - Lock. Protects the highlighted filename from being accidentally erased
U - Unlock. Unprotects the highlighted filename
R - Renames the highlighted file. Simply type in the new filename and press RETURN
1-8 - Gets a disk directory from that drive number. This drive number then becomes the default, and a directory will be taken from it if the mini-DOS menu is left and then re-entered

EXTRA FEATURES

A search and replace facility is a major feature of any word-processor, and Page 6 Writer is no exception. To use this you must first tell Page 6 Writer the string you want to find. This is done by holding down **OPTION** and pressing **CTRL-F**, to get the "FIND:" prompt on the command line. After typing the string press RETURN, and then to find the first occurrence press CTRL-F without OPTION. The FIND function is fussy and distinguishes between cases of letters. So if you asked Page 6 Writer to find 'the' it would not stop at 'The'. Also Find will stop at certain words because the string is embedded, i.e. fur*the*r.

To change the found string, you must first set the replace string. This is done by holding **OPTION** down and pressing **CTRL-C** to get the "Change To:" prompt on the command line. Type your desired replacement and hit RETURN. Now to actually change the string found press CTRL-C.

By combining the keypresses of CTRL-F and CTRL-C we can effect search and replace. Alternatively you can use the global function which is accessed by pressing **CTRL-G**. This will find EVERY occurrence of the find string and replace it with the replace string. Use with caution, because if the find string is embedded within another word, it will produce highly undesirable results.

My preference for screen colour may not be to your taste and this can be altered as well. Pressing **CTRL-B** and **CTRL-T** will cycle through the colours available for the background and text respectively.

To some degree, minor typing errors are also catered for. A common error is to see a character or word that is written in the wrong case. **CTRL-A** changes from uppercase to lowercase or vice-versa. And transposition errors can be fixed by pressing **CTRL-X**. The character at the current cursor position is then swapped with the character on its right.

Another small feature is **CTRL-W** which displays the amount of free memory in terms of characters. And by pressing **CTRL-Z** you are able to distinguish between true spaces and padded spaces, the ones that are used to compensate for word-wrap.

That's more or less the basic features of Page 6 Writer. All that remains now is for you to get familiar with Page 6 Writer and get ready to print it.

PRINTING

The support that Page 6 Writer offers for printing can be complicated, yet once mastered, you will be able to see the power of the array of features. With these new features comes a whole new set of commands as well.

To begin printing is simple, press **CTRL-P,** type the device and filename (Generally P: although you can print to the disk, etc.) and you are off. In order to make your document look presentable, Page 6 Writer uses a set of defaults which can be altered by the user.

Page 6 Writer requires formatting commands to be entered in inverse video, but because the normal inverse video key is disabled, the **SELECT** key can be used instead. *All formatting commands should be typed in lowercase only.* There are two levels of formatting which are called CONTROL and EXECUTION. CONTROL mode controls items such as the page margins, whilst EXECUTION mode commands are carried out when the line is being printed.

CONTROL COMMANDS

Remember to hold the **SELECT** key down before pressing the key.

l Is used to set the left margin. Any value between 0 and 255 can be used, with 0 representing no margin. The normal default is 5

r Positions the right margin, with a value from 1 to 255. The normal default is 75. If the right margin value is less than the left margin be prepared for some rather unpredictable results

t Top margin position. The number of blank lines to be printed before the actual text is printed. Defaults to 5. If a header exists, it will always be printed on the top line(s) of the page

b Bottom margin position. The number of blank lines to be left at the bottom of a page, before going on to the next sheet defined as the page length less the value given here. The default value is 58

f Define footer. Followed by a line of up to 255 characters, execution formatting commands can be included in the line. You do not have to set a header to use a footer or vice-versa

h Define header. As for define footer. If you do not want the header to be printed on the first page, simply press the RETURN key before defining the header

i Include a file. If followed by a legal filename (D:filename.ext), Page 6 Writer will load the new document and continue printing as normal. This allows documents larger than memory capabilities to be printed. m - Margin release. Used to outdent text, it should come into operation before a line is to be printed, and after printing the normal left margin value is restored

n Next page. No value need follow this command

p Page Length counter. Defaults to 69 though this may have to be altered depending on your paper size

q Quotation. Follow with a line of up to 255 characters. It works in a similar way to the BASIC REM statement and will not be printed

s Spacing. Defaults to 1 for single line spacing, use 2 for double, 3 for triple, etc.

w Wait. Useful only to those with letter quality or single sheet printers, it makes Page 6 Writer temporarily stop printing until a key is pressed

x Controls the page width and defaults to 80 for 80-column printers. Use 40 or 132 for others

% A value after this symbol, indicates what number to start the page numbering facility with. Defaults to 1

? This causes Page 6 Writer to start printing only when the given page number is reached

EXECUTION FORMATTING

These commands can be either at the beginning of, or embedded in, a line of text. Again remember to hold down the SELECT key when entering the key press.

Causes the current page number to be printed

c Centre a line of text. Place at the beginning of the line. If you are using a 40 or 132 column printer remember to alter the page width above, as centring uses page width in its calculation

e Edge to right margin. All text on the line following this command will be blocked flush to the right margin

u Underline mode. Use one to enable underlining and one to disable. It will only work on printers that recognise CHR$(8) and CHR$(95) as the underline on/off control codes

As Page 6 Writer was designed to be specific to no printer, how does one send control codes out? As a practical demonstration lets adhere to the Epson standard.

Firstly the Esc character must be defined at the start of your document. This can by be done by holding down SELECT and typing an UPPER-CASE letter, followed by the = sign and the ASCII value for the Esc character. Viz.

E=27

Remember the E will be inverted. The E key has now been assigned a value of 27 so all that remains to be done is to define printer codes to other keys, in much the same way.

1=14
2=15

So if we now typed the line:

E1HELLOE2

The word HELLO would appear in double-width, because we had sent the control codes to turn on double-width printing then off again.

CONCLUSION

All that remains for me to do now is say that I hope to provide extra add-on routines if there is sufficient interest, such as word count and 80 column print previewing, at a later date. Page 6 Writer has been tested with DOS 2.5, DOS XL, SpartaDOS with the US Doubler, and only one problem occurred in using disks that have been formatted in true double density, heed my warning.

I hope you enjoy using Page 6 Writer as much as I enjoyed writing it. I would also like to extend special thanks to Bev Prince for a little support and to Charlotte for the inspiration to finish the program.

PAGE 6 WRITER

```
EX 1 REM ##################################
HB 2 REM #        PAGE 6 WRITER           #
GE 3 REM #              by                #
UL 4 REM #        Phil Cardwell           #
HC 5 REM # ------------------------------ #
WC 6 REM # NEW ATARI USER - APRIL '91 #
FD 7 REM ##################################
AY 10 REM
GO 20 DSK=1
UK 30 TRAP 40000:DATA 0,1,2,3,4,5,6,7,8,9
   ,0,0,0,0,0,0,0,10,11,12,13,14,15
LI 40 DIM DAT$(91),HEX(22):FOR X=0 TO 22:
   READ N:HEX(X)=N:NEXT X:LINE=990:RESTOR
   E 1000:TRAP 120:? "CHECKING DATA"
RH 50 LINE=LINE+10:? "LINE:";LINE:READ DA
   T$:IF LEN(DAT$)<>90 THEN 170
YC 60 DATLIN=PEEK(183)+PEEK(184)*256:IF D
   ATLIN<>LINE THEN ? "LINE ";LINE;" MISS
   ING!":END
LY 70 FOR X=1 TO 89 STEP 2:D1=ASC(DAT$(X,
   X))-48:D2=ASC(DAT$(X+1,X+1))-48:BYTE=H
   EX(D1)*16+HEX(D2)
FG 80 IF PASS=2 THEN PUT #1,BYTE:NEXT X:R
   EAD CHKSUM:GOTO 50
BG 90 TOTAL=TOTAL+BYTE:IF TOTAL>999 THEN
   TOTAL=TOTAL-1000
LR 100 NEXT X:READ CHKSUM:IF TOTAL=CHKSUM
    THEN 50
OH 110 GOTO 170
DW 120 IF PEEK(195)<>6 THEN 170
DA 130 IF PASS=0 THEN 150
DP 140 FOR X=1 TO 89:PUT #1,0:NEXT X:CLOS
   E #1:END
GI 150 ? "INSERT DISK WITH DOS, PRESS RET
   URN";:DIM IN$(1):INPUT IN$:OPEN #1,8,0
   ,"D:AUTORUN.SYS"
RB 160 ? :? "WRITING FILE":PASS=2:LINE=99
   0:RESTORE 1000:TRAP 120:GOTO 50
MR 170 ? "BAD DATA: LINE ";LINE:END
VQ 1000 DATA FFFF001F4D1FA50A8DF144A50B8D
   F244A50C8DF344A50D8DF444ADC6028DC50220
   8925A9CBCDE4428DE442F021,659
DU 1010 DATA 201F252039 2AA50C8D7625A50D8D
   7725A975850CA925850DA9008D4402A9018509
   20EC254C4A260020FB200000,121
IC 1020 DATA 0000000000000018181818180018
   0066666600000000000066FF6666FF6600183E60
   3C067C180000CCD83060CC8C,793
LR 1030 DATA 0000386C3870DECC760018183000
   000000001830606060603000030180C0C01830
   0000663CFF3C660000001818,76
LW 1040 DATA 7E18180000000000000003030600000
   00007E00000000000000000030300000060C18
   3060C0007CCEDEF6E6C67C00,392
QL 1050 DATA 1838181818187E007CC60C183060
   FE00FE0C18380CC67C001C3C6CCCFE0C0C00FE
   C0FC0606C67C007CC0FCC6C6,804
QU 1060 DATA C67C007E060C18306060007CC6C6
   7CC6C67C007CC6C67E0C18300000303000303 0
   0000003030000303060000C18,944
ZM 1070 DATA 306030180C0000007E00007E0000
   30180C060C1830003C6606FC20F7210C180018
   007CC6DED6DCE03C007CC6C6,172
BV 1080 DATA C6FEC6C600FCC6C6FCC6C6FC007C
   C6C0C0C0C67C00F8CCC6C6C6CCF800FEC0C0FC
   C0C0FE00FEC0C0FCC0C0C000,280
ZX 1090 DATA 7CC6C0DEC6C67C00C6C6C6FEC6C6
   C6007E18181818187E003E0C0C0C0CCC7800C6
   CCD8F0D8CCC600C0C0C0C0C0,220
QR 1100 DATA C0FE00C6EEFED6C6C6C600C6E6F6
   FEDECEC6007CC6C6C6C6C67C00FCC6C6C6FCC0
   C0007CC6C6C6DE7C0E00FCC6,966
HF 1110 DATA C6FCD8CCC6007CC6C07C06C67C00
   7E18181818181800C6C6C6C6C6C67C00C6C6C6
   C6C66C3800C6C6C6D6FEEEC6,234
UK 1120 DATA 00C6C66C386CC6C60066666663C18
   181800FE0C183060C0FE001E18181818181E00
   406030180C060000F0303030,430
FQ 1130 DATA 3030F000081C3663000000F821F3
   2200000000000000FF000000000000000007CC2
   9999819999E6FC8299829999,28
MO 1140 DATA 83FC7CC2999E9E99C27CFC829999
   999982FCFE829E849C9E82FE7EC1CEC2CECCCC
   787CC2999E9199C27CF69999,667
XF 1150 DATA 81999999F67F6173323273617F3E
   3232323272C67CE6999284929999E6784C4C4C
   4C4E427CE6998181899999E6,326
PO 1160 DATA E6998981919999E67CC299999999
   C27CFEC3C9C9C3CEC8F07CC299999992C9767C
   C2C9C9C2C9C9F77EC39EC2F9,323
HL 1170 DATA 99C37EFEC266646464647CF69999
   999999C27CE699999999C26438F69999998981
   99F6E69999C2999999E6E699,564
EO 1180 DATA 99C3E664647CFEC1F932E4CEC1FE
   786078607E181E0000183C7E18181800001818
   187E3C180000030313F422EF,811
TJ 1190 DATA 23337F301000180C7E0C18000000
   00183C7E7E3C180000007C067EC67E0000C0FC
   C6C6C6FC0000007CC6C0C67C,412
TX 1200 DATA 0000067EC6C6C67E0000007CC6FE
   C07C00003E60FC60606006FC007EC6C6C67E00
   00C0C0FCC6C6C600001800 38,268
VZ 1210 DATA 18183C18F0180018181818 0000C0
   CCD8F8CCC6000038181818183C000000CCFEFE
   D6C6000000FCC6C6C6C60000,402
BO 1220 DATA 007CC6C6C67CC0C000FCC6C6C6FC
   0606007EC6C6C67E000000FCC6C0C0C0000000
   7EC07C06FC000030FE303030,756
QF 1230 DATA 1E000000C6C6C6C67E000000C6C6
   C66C38000000C6D6FE7C6C000000C66C386CC6
   06FC00C6C6C6C67E000000FE,458
UI 1240 DATA 0C3860FE0E000E18183818181818
   181818181818700070181 81C1818F023FF2300
   0000081838180800000001010,313
NE 1250 DATA 181C181024 0B25A5808D3024A581
   8D3124A5828D3324A5838D3424A685F020A900
   8D8F3FA000B9FFFF99FFFFC8,380
MW 1260 DATA CC8F3FD0F4EE3124EE3424E000F0
   07CAD0E0A584D0DE60A585AA0584D001601 88A
   65818D7824A5808D7724188A,169
ST 1270 DATA 65838D7B24A5828D7A24E8A484D0
   04F00DA0FFB9FFFF99FFFF88C0FFD0F5CE7824
   CE7B24CAD0EA60A928C8186D,106
HM 1280 DATA 9D441865588588A5596900858918
   AD8B3F858AAD8C3F858BA201AD8E3F8591A000
   B18A99973FC8297FC95EF016,346
PL 1290 DATA CC9C44D0EF88B18A297FC900F007
   88D0F5AC9C4488C8848CA000B9973F9188C8C4
   8CD0F61898658A858AA58B69,806
VF 1300 DATA 00858BE001D0038C8A3FCC9C44F0
   08A9409188C84CF42418A5886928858890 02E6
   890C250726E8E013F0034CAF,916
VS 1310 DATA 24A58A8D953FA58B8D963F60AD82
   3F858A8D8B3F8D913F8586AD833F858B8D8C3F
   8D923F858738AD853FED833F,415
PU 1320 DATA AAA900A0FFC68B918AC8E68B918A
   C8D0FBE68BCAD0F6918A60858C848DA9018DF0
   02A000B18CF006205438C8D0,106
IM 1330 DATA F66020A238F0FB60206E25AD9B44
   F006A000A590918620EC254C4A26A97D205438
   A9748D8E3FA9008D823F8D84,220
NG 1340 DATA 3F8D863F8D883F8D11408D3A408D
   E7438DBE028D9D44A9288D9C44A9441869018D
   833FAD310238E9018D893F38,771
FW 1350 DATA E9088D873F38E9018D853FA9FF8D
   0F40A54BF010AD893F8D853FA9078D873FA91E
   8D893F6020962DAD823F8586,839
HE 1360 DATA AD833F8587208B24200C26A9BDA0
```

continued

```
   3D205925EE8D082603273F4CBB27201C26A9AF
   A03D205925A9008D8D3F60A0,923
GI 1370 DATA 27A90091588810FBA90085528555
   855460482980858C68297FC960B00DC920B006
   1869404C472638E920058C60,309
TS 1380 DATA A0008C9B44B1868590A0008CE943
   B18649809186AD9B4449018D9B44208B2420A2
   38D012A9088D1FD0A5142910,127
BQ 1390 DATA F0F0A90085144C5326AAA9088D1F
   D0AD1FD0C905D005A9808DE943A000A5909186
   AD8D3FF0078A48200C2668AA,360
TT 1400 DATA 8AC99BD005A21E4CCE268A2CE743
   301AC99CB066297FC9209060C97BB05CC95CF0
   58C95EF054C95FF0508A48A0,227
CT 1410 DATA 008CE743B186C95EF005AD8E3FF0
   0320652C68202E26297F0DE943A0009186208B
   2438A586ED913F858CA587ED,271
BY 1420 DATA 923F058C900E0427FF27A5866900
   8D913FA58769008D923FE686D002E68720BB27
   4C4A26AE3F27DD3F27F006CA,60
WX 1430 DATA D0F84C4A26CA8A0AAAA92648A949
   48BD642748BD632748602301020304050607 08
   090C0D1A101112131417181B,7
WZ 1440 DATA 1C1D1E1F5C5E5F7C7D7E7F9C9DFE
   FF90326B29F6393A2B4F29C132D539892BCA2C
   A8305D3BB127F233412FEC31,809
PP 1450 DATA CC2F73296C338032A8278329E929
   A0286D28D5280B293A2D192DF72C102B3C2CC1
   2B342C2B2B642CADE7434980,721
QZ 1460 DATA 8DE74360AD062249108D06226020
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   ED823F858CED833F058CF00D,631
TS 1470 DATA A5868D8B3FA5878D8C3F208B2438
   AD953FE586858AAD963FE587858B058AF002B0
   1818AD8B0028FB283F6D8A3F,846
TH 1480 DATA 8D8B3FAD8C3F69008D8C3F208B24
   4CE8276038AD913FED843F858CAD923FED853F
   058C900CAD843F8D913FAD85,945
ZJ 1490 DATA 3F8D923F38A586ED823F858CA587
   ED833F058CB00BAD823F8586AD833F85876038
   A586ED913F858CA587ED923F,662
PC 1500 DATA 058CB00160AD913F8586AD923F85
   8760A9088D1FD0AD1FD0C903D01EAD9C44C928
   F014EE9C44EE9C44CE9D4420,170
UN 1510 DATA 8B2420BB27A97D2054384C0C26E6
   86D002E6874CBB27A9088D1FD0AD1FD0C903D0
   1EAD9C44C902F014CE9C44CE,343
ZJ 1520 DATA 9C44EE9D44208B2420BB27A97D20
   54384C0C26A586D002C687C6864CBB27A58685
   8AA587858BC68BA0FFB18AC9,973
TH 1530 DATA 00F004C95ED00388D0F3B18AC900
   F008C95EF00488D0F3FC28F729603898658A85
   86A58B690085874CBB27A000,729
IK 1540 DATA B186C900F008C95EF004C8D0F360
   C8D00BE687A587CD923F9002D019B186C900F0
   ECC95EF0E81898658685 86A5,250
BG 1550 DATA 87690085874CBB27AD913F8586AD
   923F85874CBB27A9008D8B3FAD923F38E904CD
   833FB003AD833F8D8C3F208B,307
RC 1560 DATA 244C4329EE7329EE73296000EE83
   29EE8329AD8329290F8D8329600EA586858AA5
   87858BC68BA0FFB18AC90EF0,719
TA 1570 DATA 0CC901F008C91FF004C95ED00488
   D0EB60B18AC90EF01BC901F017C91FF013C95E
   F00F88D0EBC68BA58BCD823F,760
NK 1580 DATA B0E24CDD29848CC68CC8F00AB18A
   C900F0F7884CFD28A48C4CA629AD823F8586AD
   833F85874CBB27A000B186C9,897
FO 1590 DATA 0EF01DC901F019C91FF829F32AF0
   15C95EF011C8D0EBE687A587CD923FF0E290E0
   4C4329C8D00EE687A587CD92,444
TL 1600 DATA 3F9005F0034C4329B186C900F0E9
   C90EF0E5C901F0E1C91FF0DDC95EF0D94C3429
XU 1610 DATA A9018D8D3F6038A586ED823F858C
   A587ED833F058CD0036868 60A5868580A58785
   816038A586858249FF65808D,251
SE 1620 DATA F13FA587858349FF65818DF23FA5
   808DF33FA5818DF43FA5828DF53F8580A5838D
   F63F858138ADF23F6DEE3FCD,767
LS 1630 DATA 893F9010201C26A9DBA03D205925
   A9018D8D3F60ADED3F8582ADEE3F8583ADF13F
   8584186DED3F8DED3FADF23F,171
YV 1640 DATA 85856DEE3F8DEE3F201024ADF33F
   8580ADF43F8581ADF53F8582ADF63F858338AD
   913FE5828584ADF42AEF2B92,293
LZ 1650 DATA 3FE58385852010 2438AD913FEDF1
   3F8D913FAD923FEDF23F8D923F60204B2A20A1
   2820682A38ADED3FE9018DED,464
TI 1660 DATA 3FADEE3FE9008DEE3F60206E2820
   4B2A20A12820682A4C1A2BAD1FD0C903F0034C
   1C2E20392AA93285912 01C26,394
HJ 1670 DATA A9E7A03D205925206F2548200C26
   68295F0940C957D009204B2A20D6284C682AC9
   53D009204B2A2084294C682A,59
OO 1680 DATA C950D009204B2A203B2D4C682A60
   38A586ED8B3F858CA587ED8C3F058CF01AAD8B
   3F8586AD8C3F8587A9008514,986
PA 1690 DATA 8D1FD0A514C91ED0FA4CBB27AD82
   3F8586AD833F85874CA52BA586858A8582A587
   858B8583A000B18AC900D01E,677
US 1700 DATA C8D0F7A58BCD923F900FAD913F85
   8AAD923F858BA0004CF42BE6F02BEB2C8B4CD0
   2B1898658A8580A900658B85,514
UW 1710 DATA 8138AD913FE5828584AD923FE583
   858538A580E5828DF13FA581E5838DF23F2010
   2438AD913FEDF13F8D913FAD,549
JK 1720 DATA 923FEDF23F8D923F60A9FF8D0A40
   4C4F2CA9058D0A40204F2CB186C900D001C84C
   3429A9008D0B40207B2CA900,971
ZV 1730 DATA AE0A40A0009186C8CAD0FA60A901
   8D0A40A9008D0B40207B2CA900A00091864CBB
   2718AD913F6D0A40AD923F6D,572
NU 1740 DATA 0B40CD853F900568684CCA2C18A5
   8685806D0A408582A58785816D0B408583 38AD
   913FE5808584AD923FE58185,699
MO 1750 DATA 85204D2418AD913F6D0A408D913F
   AD923F6D0B408D923F60AD8E3F49748D8E3F60
   A9F6A03D20592520A238297F,147
XU 1760 DATA F0F9C97DF0F529DFC95960A9EC2C
   E72D088D1FD0AD1FD0C903F00160A932859120
   1C26A90CA03E20592520D42C,607
VG 1770 DATA F0034C0C26A2FA9A201F2520EC25
   4C4A26A000B186C95EF011C8D0F7E687A587CD
   923F90EEF0EC4C4329C8D002,344
PP 1780 DATA E6874C3429A586858AA587858BC6
   8BA0FFB18AC95EF01188C0FFD0F5C68BA58BCD
   833FB0EC4CDD293898658A85,45
NH 1790 DATA 8AA900658B858B38A58AE586858C
   A58BE587058CD012848C18A58AE58C858AA58B
   E900858B4C4D2DA58A8586A5,879
EF 1800 DATA 8B85874CBB27A9408D0ED4A9F38D
   0002A92D8D0102AD3002858CAD3102858DA000
   B9D72D918CC8C01CD0F6A004,23
IA 1810 DATA A558918CA559C8918CA01AA58C91
   8CA58DC8918CA9C08D0ED4607070 70C3000003
   0303030303030303030303E82D,532
FY 1820 DATA E32E030303030303031041D72D48
   AD73298D0AD48D18D08DC802AD83298D17D0A5
   918DC602A90A8DC502A9208D,876
OX 1830 DATA F402A9008DB6026840A9088D1FD0
   AD1FD0C903F00320392A201C26A918A03E2059
   25A000B18649809186208B24,163
HA 1840 DATA A000B18649809186A93285912 06F
   25295F0940C957D00920802E200C294C8F2EC9
   53D00920802E20EA294C8F2E,340
AF 1850 DATA C950D00920802E201A2D4C8F2E20
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IP 1860 DATA A5878581EDE83F8DF23F207F2AAD
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   8D933FA0008C943F8CF002A9,9
JO 1870 DATA 20205438A97E2054388C943F206F
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   8DE7438DA2024CD02EC99BF0,886
F5 1880 DATA 45C97ED00F881004C84CD02EA97E
   2054384CD02E858C297FC92090C4C97DB0C0CC
   933FF0BBA58C297FA2088E1F,353
SI 1890 DATA D0AE1FD0E005D0020980 99BF3F20
   5438A9008DE743C84CD02EA2018EF002A90099
   BF3F9860A9328591201C26A9,402
LJ 1900 DATA CFA03D2059252 0D42CF0034C0C26
   ADF144850AADF244850BADF344850CADF44485
   0D4C74E46F2F6A30A9008DE8,431
XT 1910 DATA 434C7C2FA9808DE843AD823F858A
   AD833F858B4C962FA9008DE843A586858AA587
   858B38AD923FE58BAAE8A000,150
MY 1920 DATA B18A2CE843300FC99BD005A95E4C
   C22F202E264CC22FC95ED005A99B4CC22F20A8
   32918AC8D0D9E68BCAD0D460,847
OP 1930 DATA 201C26A939A03E205925A900205B
   30304020772FA270AD823F9D4403AD833F9D45
   0338AD913FED823F9D4803AD,945
MI 1940 DATA 923FED833F9D4903A90B9D420320
   56E4300B206F2F20273B300A4C583190 48206F
   2F68A8C080F0219048A97D20,49
ZA 1950 DATA 5438A951A03E20592568AAA90020
   763820503020962DA9018D8D3F60201C26A959
   A03E2059254C3730AEEA43A9,25
KQ 1960 DATA 0C9D42034C56E4A2708EEA438DEB
   43ADBE0248A9408DBE6B3066310220B72E688D
   BE02AD943FD008200C266868,710
PN 1970 DATA 4C962D205030AEEA43A9BF9D4403
   A93F9D4503AD943F9D4803A9009D4903ADEB43
   9D4A03A9039D42034C56E438,236
NU 1980 DATA A586ED823F858A858EA587ED833F
   858B858F058AF004A9C48591201C26A973A03E
   205925A904205B3010034C1E,51
HO 1990 DATA 30A591C9C4F003201F2520EE30C0
   8090034C1E304C5831AEEA43A5869D4403A587
   9D450338AD843FE5869D4803,851
OB 2000 DATA AD853FE5879D4903A9079D420320
   56E41005C088F00160AEEA4318BD48036D823F
   8D913FBD49036D833F8D923F,583
KB 2010 DATA 18AD913F658E8D913FAD923F658F
   8D923F20892FAD913F858AAD923F858BA900A8
   918AC8D0FB602050301 0034C,708
OL 2020 DATA 1E30A97D205438A96967316232A0
   3E2059254C3730A9408D0ED4AD73298DC6028D
   C802AD83298DC50260A2008E,83
HS 2030 DATA E93F8EEA3F8EEB3F8EEC3F38B18A
   E910902AC90AB0260EE93F2EEA3F0EE93F2EEA
   3F0EE93F2EEA3F0EE93F2EEA,479
GR 2040 DATA 3F0DE93F8DE93FC8D0D4E68B4C92
   31F8ADE93F0DEA3FF01C38ADE93FE9018DE93F
   ADEA3FE9008DEA3FEEEB3FD0,924
DE 2050 DATA 03EEEC3F4CC431ADEB3FD86038AD
   ED3FED863F8DEF3FADEE3FED873F8DF03F0DEF
   3FD010201C26A9ACA03E2059,648
BY 2060 DATA 25A9018D8D3F6018A586858 06DEF
   3F8582A587858 16DF03F858338AD913FE58085
   84AD923FE5818585186583CD,318
RG 2070 DATA 853F9010201C26A9A0A03E205925
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   913FADF03F858563325E336D,812
PL 2080 DATA 923F8D923FA5868582A5878583AD
   863F8580AD873F85812010244CBB27A000B186
   AAC8B186889186C88A918660,427
XE 2090 DATA A000B186293FC921900AC938B006
   B186494091864C6E28482980858C68297FC960
   B00BC9409005E9404CBF3269,188
GB 2100 DATA 20058C60A9008D1FD0AD1FD0C903
   D026201C26A903A03F20592520B72E8D1140D0
   034C0C26A000B9BF3F991240,185
PH 2110 DATA C8CC943FD0F44C0C26A586858AA5
   87858BA9FF8D0F40A001A200AD1140F053BD12
   40202E26D18AF005E000D0EB,710
DP 2120 DATA CAC8D00BE68BA58BCD923FF002B0
   36E8EC1140D0DD1898658A858CA58B6900858D
   AD913FC58CAD923FE58D9018,877
TP 2130 DATA 38A58CED114085868D0E40A58DE9
   0085878D0F40208B2760201C5F335A3426A909
   A03F205925A9018D8D3F6020,11
QF 2140 DATA 1C2638AD843FED913FAAAD853FED
   923F207638A9018D8D3F60054B45053A010101
   000100501B0E0F128D10408A,477
ZO 2150 DATA 48984838AD0040ED0240AD0140ED
   03409031A9018DFE02A270A9009D48039D4903
   A90B9D4203AD10402056E408,592
JE 2160 DATA A9008DFE02281009201E30A2FA9A
   4C4A26ADFF02D0FB68A868AAAD10406020 1C26
   A9D7A03E4C59254C1B35A900,110
XN 2170 DATA 8D1FD0AD1FD0C903D0034CAE3D20
   1C26A9BEA03E205925206F31A900205B301003
   4C1B35206F3120E633A2008E,909
IF 2180 DATA F83F8EF73F8E0C408E0D408EE643
   8D87339DF93FE8E00CD0F5A9FF8D07408D0540
   A204BD92339D7440CAD0F7AD,950
FB 2190 DATA 823F858AAD833F858BA0008C5B34
   56350640CC0540F006ADF93F8D0640B18A1003
   4CEA35C95EF02999E440C8EE,84
VY 2200 DATA 0640AD0640CDFA3F90E68C903FB1
   8AC900F011CE064088D0F4AC903FC8B18AC900
   F001888C903F9838658A858A,810
OC 2210 DATA A58B6900858BA000AD0740C9FFD0
   03209135AD0540F00320B935382E0540AD903F
   8D8F3FA9E4858EA940858F20,658
AC 2220 DATA 9C3720CA35AD0740CDFD3F900320
   323538A58AED913F858CA58BED923F058CF03C
   903AADF83FF00BA9008DF73F,32
WS 2230 DATA 8DFC3F203235ADBF3FC945D00FA9
   9B205438A98BA03E205925206F2520273BA2FA
   9A20962DA97D205438200C26,378
FN 2240 DATA 4C4A264C583438ADF83FED0740A8
   8888F008300620DC3588D0FAADF83FF0118D8F
   3FA9E5858EA942858F205735,718
KF 2250 DATA 52368935209C3720DC3520DC3520
   DC35EE0040D003EE0140ADFF3FD01F38AD0040
   ED0240AD0140ED0340901020,126
WD 2260 DATA 1C26A9E3A03E205925206F2520E6
   33ADF73FF0118D8F3FA9E4858EA941858F20B9
   35209C37ACFC3F8C074088F0,317
TW 2270 DATA 08300620DC3588D0FA60A920ACF9
   3F8C0640F006209733 88D0FA60ACFE3F18986D
   07408D074020DC3588D0FA60,491
BR 2280 DATA A99B209733ADE643F00320973360
   8D0940297F20A832AE3536DD3536F009CAD0F8
   CE06404C2E37CA8A0AAA8C08,361
CA 2290 DATA 40A93648A91848BD473648BD4636
   486038AD0840658A858AA58B6900858B4C5834
   B18AC95EF001888C08406010,871
VH 2300 DATA 776C727462736E686625703F786D
   7169A236AB36B536BF36C936D336DD53364E37
   36EC360E3788369836783 66E,541
VT 2310 DATA 36653627375037C8A9008D05404C
   2A36C82084318D04404C2A36C82084318D0240
   ADEC3F8D03404C2A36C82084,360
WA 2320 DATA 318D0040ADEC3F8D01404C2A36C8
   2084318DFB3F4C2A36A9008DFF3FC84C2A36C8
   2084318DF93F4C2A36C82084,906
PJ 2330 DATA 318DFA3F4C2A36C82084318DFC3F
   4C2A36C82084318DFD3F4C2A36C82084318DFE
   3F4C2A36AC0840C898482032,457
EH 2340 DATA 3568A88C084060200737888CF73F
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   C8B18AC95ED0F96020073788,242
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UR 2350 DATA 8CF83FA001B18A99E442C8CCF83F
   90F5F0F34C2A362007374C2A36C8B18AC91DF0
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GS 2360 DATA 48AD0940297FAA689D6440202A36
   4C4F372D381936A001A200B18AC95EF00C20A8
   329DBF3FC8E8E00ED0EE8E94,522
TQ 2370 DATA 3FA9009DBF3FA2608EEA43A9048D
   EB4320803010034CD033A900858E858F201F25
   20EE3010034CD0336868A270,18
PN 2380 DATA 8DEA434C4E34A000CC8F3FF01D81
   8E301A20A832209733AD0D40F00AA908209733
   A95F209733C84C9E37608C08,524
YR 2390 DATA 40297F8D094020A832C963D01B38
   AD0440ED8F3F4A38EDF93FA8A92020973388D0
   FAAC08404CBC37C965D01138,517
AN 2400 DATA ADFA3FED8F3F38EDF93FA8A9204C
   DF37C975D008AD0D4049018D0D40C923D0128C
   0840AE0040AD0140207138AC,373
XA 2410 DATA 08404CBC37AE0940BD6440209733
   4CBC372E382939A200A90C8D42032056E4A200
   A96E8D4403A9388D4503A902,278
HJ 2420 DATA 8D48038D4903A9039D42034C56E4
   8CA138A2008E48038E49038EFF02A00B8C4203
   2056E4ACA13860453A9BA080,633
JC 2430 DATA 4C7838A0008C994485D485D520AA
   D920E6D8A000B1F348297F2C99443006205438
   4C9A382097336803003C8D0E7,620
KQ 2440 DATA 6000ADFC02C9FFD003A90060ADFC
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   9E44C9C08010293FC93CD018,707
FR 2450 DATA AD9E442940F0068DBE02A90060AD
   BE0249408DBE02A90060AE9E44BD16392CBE02
   500AC9619006C97BB00229DF,363
YU 2460 DATA C980F0D96048A9328D00D2A2AF8E
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   6B2B2A6F8070759B692D3D76,371
EL 2470 DATA 8063802A39D5398062787A348033
   361B3532312C202E6E806D2F80728065797F74
   7771398030377E383C3E6668,408
ED 2480 DATA 6480826773614C4A3A80804B5C5E
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   261B2522215B205D4E804D3F,336
5B 2490 DATA 80528045599F545751288029279C
   407D9D464844808347534100C0A7B80800B1E1F
   0F8010159B091C1D16800380,836
LM 2500 DATA 8002181A808085801B80FD800020
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   807DFF0608048084071301D6,795
EJ 2510 DATA 39A23A20CE32AD1140F01620033A
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   4C0C26A9088D1FD0AD1FD0C9,241
TB 2520 DATA 03D023201C26A913A03F20592520
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   D0F44C0C2638A5868582ED0E,870
5G 2530 DATA 40858CA5878583ED0F40058CD065
   A9FF8D0F4018AD114065868580A90065878581
   38AD913FE5828584AD923FE5,298
TM 2540 DATA 83858520102438AD913FED11408D
   913FAD923FE9008D923FAD3A40F0298D0A40A9
   008D0B40207B2CA000B93C40,692
RZ 2550 DATA 202E269186C8CC3A40D0F218A586
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   273BA270A9999D4403A93E9D,639
NG 2560 DATA 4503A9059D4803A9009D4903A906
   9D4A03A9039D42032056E4305CA9008D9844AE
   9844A5649D1644A5659D1744,762
ZP 2570 DATA EE9844EE9844204C3B303FC92BB0
   4B205438204C3B3033A9008D9A44204C3B3029
   205438EE9A44AD9A44C908D0,121
IQ 2580 DATA 08A92E2054384CF93AC90BD0E2A9
   05858C204C3BC68CA58CD0F74CD03AA270A90C
   9D42032056E4A270BC430360,254
AT 2590 DATA 48A99B205438682054382O4C3B30
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   9D42034C56E4206F31202E38,936
JT 2600 DATA 206F31A9018DF0028552A97D2054
   3820A33A209E3DAD16448588AD17448589A900
   8D1544CE9844CE984420923D,422
II 2610 DATA 206F25A2018EF002AEBC3BC96190
   9F3B9A3C02295F858CDDBC3BF006CAD0F84CA1
   3CCA8A0AAABDD13B48BDD03B,29
QR 2620 DATA 4860132B2A2D3D04524C55463132
   333435363738180CF53B023C1F3C303C933CB6
   3CA63CAE3C033D1D3D1D3D1D,930
XT 2630 DATA 3D1D3D1D3D1D3D1D3D1D3D473D25
   3D20923DAE1544F01FCACA4C103C20923DAE15
   44E8E8EC9844B00D8E1544BD,31
EH 2640 DATA 16448588BD174485894C8E3B2092
   3DAD1544C90690F338E906AA4C103C20923DAD
   1544186906CD9844B0DEAA4C,634
OM 2650 DATA 103CA200BD993E9DEC43E8E003D0
   F5A001B188297F20A832C920F0049DEC43E8C8
   C00DD0ECBDEB43C92ED001CA,707
IV 2660 DATA 8E1444A9009DEC4360A2709D4203
   AD14449D4803A9009D4903A9EC9D4403A9439D
   45034C56E420433CA9212077,57
BT 2670 DATA 9B3C963D3C10034C653D20923D4C
   8E3B20433CA9234C993C20433CA9244C993C20
   593DA96BA03F205925A9408D,834
JZ 2680 DATA BE0220B72EA9008DBE02AD943FF0
   2B20433CA200AC1444A92C99EC43C8BDBF3F99
   EC43C8E8EC943FD0F38C1444,363
RF 2690 DATA A90099EC43209E3DA9204C993C20
   9E3D4CA13C20593DA976A03F20592520D42CD0
   EB209E3D20433CA9FE4C993C,980
AX 2700 DATA A58C8D9A3E4C5E3BA2708EEA43A9
   049D4A03A900858E858F20433CA90320773C30
   25201F2520EE30301DA2FA9A,403
KU 2710 DATA A97D20543820962D200C264C4A26
   A9168554A99D2054384C54388C084020273B20
   593DA951A03E205925AE0840,888
FH 2720 DATA A9002076388A9FD205438A98BA03E
   205925206F25209E3D4CA13CA00CB18849973D
   AD3D8091888810F760205930,363
FV 2730 DATA A91EA03F205925AD9A3E4C5438AE
   3DA93E60506167652036205772697465720020
   6279205068696C2043617264,336
GD 2740 DATA 77656C6C0045786974207464F2044
   4F5300427566666572204675C6C0044656C65
   74652028532C572C5029003A,844
TQ 2750 DATA 2041726520596F752053757265 3F
   2028592F4E2900455241534520414C4C205445
   585400457261736520 28532C,11
NO 2760 DATA 572C50293A20D2C5D4D5D2CE2074
   6F20657869740053617665202844657669 6365
   3A46696C656E616D65293E00,359
NK 2770 DATA 4572726F72202300425245414B20
   4B65792041626F7274004E6F204572726F7273
   004C6F61642028446576696 3,975
QN 2780 DATA 653A46696C656E616D65293E0020
   507265737320D2C5D4D5D2CE0044313A2A2E2A
   004D656D6F72792046756CAA,310
BV 2790 DATA 3E813F6C004E6F20746578742069
   6E20627566666572005072696E742028446576
   6963653A46696C656E616D65,307
YL 2800 DATA 293E005072696E74696E672E2E2E
   00496E7365727420 6E6578742073686565742C
   20707265737320D2C5D4D5D2,775
ZD 2810 DATA CE0046696E643A004E6F7420466F
   756E64004368616E676520546F3A001B1E1B1F
   1B1C1B1D20C5D3C32D457869,336
ZE 2820 DATA 7420C3D4D2CCADCC6F616420C3D4
   D2CCADC4656C6574652020202020C66F726D6174
   20D56E6C6F636B20CC6F636B,945
UV 2830 DATA 20D2656E616D6520447269766520
   230052656E616D6520746F3A00466F726D6174
   204469736B00E202E302001F,759
WK 2840 REM * 8280 BYTES
```

INVADERS

by A. Edwards

Have you ever sat down and tried to write a program on your ATARI without using the 'PRINT' statement ? That's how this game came about, and without TURBO BASIC, I don't think it would be possible without some serious machine code programming.

The first thing to strike me about this language was that it is not easy to write a program in an un-structured way. This appealed to me at the time, as I was in my first year of a B/TEC course, and Pascal was the order of the day. Not being able to find, (or indeed afford), the DRAPER PASCAL package, the chance to obtain a structured programming language, and with a compiler thrown in, was one I readily jumped at. The range of extra commands it adds to standard BASIC is staggering, especially if you consider that you also get an extra 2K of RAM to play with. The speed increase without the compiler was alone worth the price, but when compiled, it increases to something of the order of 14-15 times faster than ATARI BASIC.

So with all this extra speed and added commands I set about seeing if I could write a decent game. The result is a version of one of the all time classics but without any machine code in sight. As you can see from the listing, much use is made of the 'MOVE' statement. What this does is to move a block of memory of size C to B, from A ...

```
MOVE A,B,C
```

It should be noted that A can be the address of a string, an address in RAM, or an address in ROM. The command can be used, for example, to easily and quickly redesign a character set, (assuming that the data is stored in CHAR$) and the only statements needed are :

```
TOP=PEEK(106)
POKE 106,TOP-5
GRAPHICS 0
MOVE ADR(CHAR$),(TOP-4)*256,1024
POKE 756,TOP-4)
```

This is a simple use of the command, (see line 435), although a very useful one, and easier than the routine given in ISSUE 29, as CHAR$ can be declared anywhere in the program, at any time.

HOW THE PROGRAM WORKS

The procedures in the program are all named in such a way that their purpose is fairly self explanatory, but I will go through them now, starting at the top.

PROC STR_TEST - checks to see if any of the strings holding the invaders are empty. If so, it sets them to null, and the variable DWN to a number to be taken away from LEV at a later time to determine how far down the rest of the strings holding the invaders are allowed to go

PROC INV_FIRE - initialises the invader fire, and checks to see if first movement of shot hits player. Also sets AF to 1.(used as BOOLEAN later)

PROC NO_MS - the mothership was missed, reset all MS related variables and blank out last position

PROC HIT - when any hit by the player is detected, this routine decides what it was, and how to increment the score. Incidentally, lines 140 and 145 took about five hours of head scratching. (They determine which invader in which string was hit)

PROC FIRE - this initialises the players fire. Also sets FIRE to 1, again for use as a BOOLEAN later

PROC DOWN_1 - moves the bank of invaders down one character line. Checks to see if player is over-run, if so, calls PROC RESET

250 #PROG:DO - start of the main loop. This is what holds it all together. As you can see, there are as few lines here as possible, every line having an IF statement in it. Line 255 reads the keyboard and assigns a value to key. Note also the use of those BOOLEAN's here, and also in lines 330,340 and 345. This is a fast way of doing things when you only want a yes or no answer, or a value of 0 or 1. e.g. In line 340, PX will be decremented by 0.5 if the key pressed was a 'Z' ((KEY=23)=1.1/2=0.5), and also 0.5 if the joystick is pushed left. Line 395 simply LOOP's back to the DO at line 250

PROC STIK - sets up an array, X(15) to hold all the values for the left - right positions of the joystick. This array is then used in the manner - XPOS=XPOS+X(STICK(0), therefore, if the joystick is pushed left, X(STICK(0)) will have the value -0.5, or the value in X(11)

PROC SET_UP - as would be expected, sets up all necessary variables and strings, and changes the necessary characters

PROC FILL_ARRAY - fills the 4 arrays that hold the invaders

PROC RESTART - called when the game is over. Sets the graphics mode 2 and puts score on screen, plus a little animation and sound to make life interesting

PROC RESET - called when all invaders are removed or bottom row reaches the limit. Gives 500 bonus and sets up next screen if invaders PROC BORDER - does less now than originally intended, just a line of inverse spaces now

PROC PAUSED - pauses the game at any point if P is pressed. Waits for fire button or space to be pressed. The EXIT in line 660 is from the DO, not the procedure

PROC HIT_PLAYER - the player has been hit. Decrement lives, check there are lives left, and continue

Lines 700 and 705 are the character data

continued

```
CS 1 REM ############################################
JS 2 REM #              INVADERS                    #
TD 3 REM #            by A. Edwards                 #
ZL 4 REM #       Written in Turbo Basic             #
SG 5 REM # ---------------------------------------- #
MV 6 REM # NEW ATARI USER - JUNE 1991               #
CY 7 REM ############################################
NN 8 REM
UF 10 DPOKE 47900,0
VI 15 CLR :EXEC SET_UP:POKE 559,34:GO# PR
   OG
LV 20 PROC STR_TEST
SK 25   IF NV4$=SPC$(1,30) AND DWN=0 THEN
    DWN=80:V4=0:MOVE ADR(SPC$),INMV+240,2
   9:NV4$=""
YJ 30   IF NV3$=SPC$(1,30) AND DWN=80 THE
   N DWN=160:V3=0:MOVE ADR(SPC$),INMV+160
   ,29:NV3$=""
QP 35   IF NV2$=SPC$(1,30) AND DWN=160 TH
   EN DWN=240:V2=0:MOVE ADR(SPC$),INMV+80
   ,29:NV2$=""
JN 40   IF NV1$=SPC$(1,30) AND DWN=240 TH
   EN DWN=320:V1=0:MOVE ADR(SPC$),INMV,29
   :NV1$=""
UZ 45 ENDPROC
IA 50 ------------------------------
TP 55 PROC INV_FIRE
BB 60   AS=10:AF=1:POKE RAX,0:RAX=RAX+40:
   POKE RAX,2:IF PEEK(RAX+40)=3 THEN POKE
    RAX+40,0:EXEC HIT_PLAYER
VB 65 ENDPROC
IC 70 ------------------------------
YS 75 PROC NO_MS
UV 80   MS$="♥♥♥♥":MOVE ADR(MS$),SC+119+M
   SM+2,4:MS=0:MSM=0:MS$="♥┤┐/"
VD 85 ENDPROC
IE 90 ------------------------------
QS 95 PROC HIT
CK 100   SOUND 1,50,10,10:KL=PEEK(SC+BX-4
   0):IF KL=4 OR KL=5 OR KL=6:MS$="    ":
   SOUND 3,0,0,0
DY 105      R=RAND(10)*10+100:MS$(2)=STR$(
   R):POSITION MSM+1,3:? MS$:PAUSE 15:L=1
MK 110      S=S+R:MS$="♥♥♥♥":MOVE ADR(MS$)
   ,SC+118+MSM+3,4:MS=0:MSM=0:MS$="♥┤┐/"
MV 115   ELSE :IF KL=1:S=S+25:INVS=INVS+1
   :ENDIF :ENDIF
CJ 120   IF INT(MV)=MV:O=0:ELSE :O=1:ENDI
   F
DI 125   IF KL>196 AND KL<253 THEN L=1
XC 130   IF L THEN L=0:GOTO 170
CJ 135   POKE SC+BX-40,7:PAUSE 3:POKE RAX
   ,0
PI 140   STR=ABS(LEV-(BX DIV 40*40-40)):H
   T=BX MOD 40-INT(MV+O):IF HT<2 THEN HT=
   2
EB 145   IF HT>27 THEN HT=27
XT 150   IF STR=0 THEN NV1$(HT-1,HT+3)="♥
   ♥♥♥":S=S+50:GOTO 170
VT 155   IF STR=80 THEN NV2$(HT-1,HT+3)="
   ♥♥♥♥":S=S+25:GOTO 170
KE 160   IF STR=160 THEN NV3$(HT-1,HT+3)=
   "♥♥♥♥":S=S+15:GOTO 170
JL 165   IF STR=240 THEN NV4$(HT-1,HT+3)=
   "♥♥♥♥"
NV 170   IF AS<0 THEN AS=0
EZ 175   SOUND 1,0,0,0:POSITION 8,1:? S:E
   XEC STR_TEST:FS=0:SOUND 0,4,8,FS:POKE
   SC+BX-40,0:SOUND 1,30,8,AS
VZ 180 ENDPROC
PT 185 ------------------------------
AE 190 PROC FIRE
YK 195   FIRE=1:BX=PX+41:MOVE ADR(BOM$),S
   C+BX,1:MOVE ADR(BOV$),SC+BX+40,1:BX=BX
   -40:FS=10:SOUND 0,10,8,FS
VK 200 ENDPROC
PE 205 ------------------------------
JP 210 PROC DOWN_1
JP 215   MOVE ADR(SPC$)+1,INMV,28
JT 220   IF V2<>0 THEN MOVE ADR(SPC$)+1,I
   NMV+80,28
UE 225   IF V3<>0 THEN MOVE ADR(SPC$)+1,I
   NMV+160,28
SJ 230   IF V4<>0 THEN MOVE ADR(SPC$)+1,I
   NMV+240,28
VJ 235   INC=-INC:LEV=LEV+40:IF LEV-DWN>9
   19 OR LEV>679 THEN EXEC RESET
VS 240 ENDPROC
PM 245 ------------------------------
TL 250 # PROG:DO
HM 255   KEY=PEEK(764):IF (NOT STRIG(0) A
   ND NOT FIRE) OR (KEY=33 AND NOT FIRE)
   THEN EXEC FIRE
IY 260   IF FIRE THEN MOVE ADR(BOM$),SC+B
   X,1:MOVE ADR(BOV$),SC+BX+40,1:IF PEEK(
   SC+BX-40)<>0 THEN FIRE=0:POKE SC+BX,0:
   EXEC H
YB 265   IF NOT AF THEN RAX=RAND(34)+LEV+
   SC+6:AX=PEEK(RAX):IF AX=1 AND NOT AF T
   HEN EXEC INV_FIRE
RD 270   IF KEY=62 AND ATF THEN ATF=0
EB 275   IF KEY=63 AND NOT ATF THEN ATF=1
```

A point to note is that the high score is stored in the area of RAM protected in the SET_UP procedure, allowing the CLR command to be used. It is then DPEEKed when needed by the program, or DPOKed when it is to be updated. I realise that this may cause a problem with scores over 65535, but somehow I don't think that score is likely. (I wrote it and the best I can do is 24560).

I see no point in giving game instructions, save to say that the 'Z' and 'X' keys may be used for left and right movement, space bar to fire, 'P' to pause, 'A' for autofire and 'S' to stop autofire. (a joystick may of course be used, but I sat on mine, hence the keyboard routines).

There are no frills, the break key is not disabled, there is no fancy music, and you've seen the game before, but it's still fun, all the more because now you'll Know how it all works.

I hope this will give you some idea of the speed that TURBO BASIC is capable of, especially if you notice that the program here had to be physically slowed down to make it playable once it was compiled. I can strongly recommend it to any programmer, old or new. For the cost of a cheap game, you could just as easily buy this language and try your own hand. Have fun with the program, and see if you can be tempted to write one yourself.

MAIN VARIABLES

NV1$, NV2$, NV3$ and NV4$ all hold the invaders
SPC$ is a general purpose 'blanking out' string
BOM$ is the bomb, BOV$ is the bomb blanking string
MS$ is the mothership
PL$ is the player
SH$ is the shields at the bottom of the screen
SCL$ is the status display line
PX is the player X position
BX is the player bomb X position
RAX is the alien bomb X position
KEY holds the value of any key pressed
SC is the screen address in RAM
PL holds the number of player lives
LEV is the height of the top alien
INC is the alien movement increment
WV is the number of waves
S is the players score
MSM mothership X position

```
GW 280   IF ATF AND NOT FIRE THEN EXEC FI
    RE
XF 285   IF NOT MS AND RAND(800)=7 THEN M
    SM=0:MS=1:MOVE ADR(MS$),SC+121,4
HL 290   IF V1=0 AND V2=0 AND V3=0 AND V4
    =0 THEN INVS=24:EXEC RESET
HO 295   IF KEY=10 THEN EXEC PAUSED
SN 300   INMV=SC+LEV+MV:MOVE ADR(NV1$),IN
    MV,V1:MOVE ADR(NV2$),INMV+80,V2:MOVE A
    DR(NV3$),INMV+160,V3
CU 305   IF AF THEN POKE RAX,0:RAX=RAX+40
    :POKE RAX,2:PKAF=PEEK(RAX+40):IF PKAF=
    3 THEN EXEC HIT_PLAYER
PJ 310   IF AF AND PKAF<>3 AND PKAF<>0 AN
    D PKAF<>1 THEN POKE RAX+40,0:AF=0:POKE
     RAX,0
PE 315   IF RAX>960+SC THEN POKE RAX,0:AF
    =0:AS=0
NM 320   IF NOT MV MOD 1 THEN SOUND 2,100
    ,8,10:SW=SW<>1
RM 325   IF NOT SW:MOVE ADR(RV$),48136,8:
    ELSE :MOVE ADR(LV$),48136,8:ENDIF
IW 330   FS=FS-((FS>0)/2):IF FS>-0.5 THEN
     SOUND 0,4,8,FS
WE 335   MOVE ADR(NV4$),INMV+240,V4:SOUND
     2,0,0,0:SOUND 3,0,0,0:IF FIRE THEN BX
    =BX-40
OY 340   PX=PX-(KEY=23)/2:PX=PX+X(STICK(0
    )):IF PX<921 THEN PX=921
JT 345   PX=PX+(KEY=22)/2:IF PX>956 THEN
    PX=956
OE 350   IF FIRE AND BX<120 THEN FIRE=0:M
    OVE ADR(SPC$),SC+121,38
KZ 355   IF MS THEN MSM=MSM+0.25:IF MSM<3
    5.75 THEN MOVE ADR(MS$),SC+121+MSM,4:S
    OUND 3,20,14,8
IC 360   MOVE ADR(PL$),PX+SC,3:POKE 77,0:
    MV=MV+INC:IF MSM>34 THEN EXEC NO_MS
HH 365   IF MV<1 THEN INC=ABS(INC)
BD 370   IF AF AND AS>-1 THEN SOUND 1,30,
    8,AS:AS=AS-1
VG 375   IF MV>9 THEN EXEC DOWN_1
FG 380   IF INVS>23 THEN EXEC RESET:GOTO
    255
SJ 385   IF OVER THEN EXEC RESTART
NQ 390   IF NOT (PEEK(753)) THEN POKE 764
    ,255
SD 395 LOOP
OR 400 ------------------------------
IR 405 PROC STIK
MR 410   RESTORE 415:DIM X(15)
XH 415   FOR I=1 TO 15:READ D:X(I)=D:NEXT
     I:DATA 0,0,0,0,.5,.5,.5,0,-.5,-.5,-.5
    ,0,0,0,0
VQ 420 ENDPROC
PK 425 ------------------------------
EZ 430 PROC SET_UP
SY 435   POKE 106,184:GRAPHICS 0:POKE 559
    ,64:MOVE 57344,48128,1024:POKE 756,188
    :POKE 82,2
MP 440   RESTORE 700:FOR A=7 TO 55:READ D
    :POKE 48128+8+A,D:NEXT A:EXEC STIK:POK
    E 752,1:? :CLS :DIM SH$(40)
ZE 445   SH$="♥♥♥♥♥QRE♥♥♥♥♥♥♥QRE♥♥♥♥♥♥♥QRE♥
    ♥♥♥♥♥QRE♥♥♥♥♥♥":DIM LV$(8),RV$(8)
HM 450   POKE 709,255:POKE 710,0:SC=DPEEK
    (88):DIM MS$(4):MS$="♥┤┐/"
OA 455   DIM SCL$(40),NV1$(30),NV2$(30),N
    V3$(30),NV4$(30),SPC$(40),PL$(3),INS$(
    5),BOM$(1):INS$="♥♥♥♥♥"
YZ 460   DIM BOV$(1):PL$="♥┘♥":INS$(3,3)=
    "├":SPC$(1)="♥":SPC$(40)="♥":SPC$(2)=S
    PC$:BOM$="|":BOV$="♥":EXEC FILL_ARRAY
LP 465   SCL$="♥♥3#/2%♥◢◢◢◢◢♥♥,)6%3♥♥♥♥♥♥
    ♥♥()'(♥◢◢◢◢◢♥♥":MOVE ADR(SCL$),SC+40,4
    0:MOVE ADR(SH$),840+SC,40
TO 470   PL=5:FOR A=1 TO PL:POKE SC+60+A,
    3:NEXT A
XV 475   LEV=160:INC=-(1/50):MV=5:PX=922:
    WV=1:? WV:POSITION 33,1:? DPEEK(47900)
    :EXEC BORDER
SW 480   RESTORE 710:FOR A=1 TO 8:READ D:
    LV$(A,A)=CHR$(D):NEXT A:FOR A=1 TO 8:R
    EAD D:RV$(A,A)=CHR$(D):NEXT A
WR 485 ENDPROC
PJ 490 ------------------------------
SJ 495 PROC FILL_ARRAY
JX 500   FOR A=1 TO 30 STEP 5:NV1$(A,A+4)
    =INS$:NV2$(A,A+4)=INS$:NV3$(A,A+4)=INS
    $:NV4$(A,A+4)=INS$
TG 505   NEXT A:V1=29:V2=V1:V3=V1:V4=V1
VP 510 ENDPROC
PJ 515 ------------------------------
OR 520 PROC RESTART
XF 525   POKE PX+SC+1,0:PAUSE 70:SOUND 0,
    255,10,14:SOUND 1,254,10,14:SOUND 2,25
    3,10,14:POKE 53768,1
QS 530   HS=DPEEK(47900):IF S>HS THEN HS=
    S
SL 535   DPOKE 47900,HS:GRAPHICS 18:POKE
    756,188:SC=DPEEK(88)
VU 540   MOVE ADR(LV$),48136,8
SM 545   POSITION 0,0:? #6:? #6:? #6;" YO
    U HAVE LOST !":? #6
KG 550   ? #6;" and scored:";S;".":? #6:P
    AUSE 10:POKE 77,0
FX 555   ? #6:? #6;" press start":? #6;"
    to play again .."
GS 560   SC=DPEEK(88):FOR A=SC TO SC+139:
    POKE A,1:POKE A-1,0:IF PEEK(53279)=6 O
    R NOT STRIG(0) THEN 15
HF 565    PAUSE 4:NEXT A:POKE A-1,0:GOTO
    540
HJ 570   FOR A=0 TO 3:SOUND A,0,0,0:NEXT
    A
WQ 575 ENDPROC
PI 580 ------------------------------
XL 585 PROC RESET
TS 590   FOR A=0 TO 3:SOUND A,0,0,0:NEXT
    A:POKE PX+SC+1,0
XN 595   IF INVS<24 THEN EXEC RESTART
PZ 600   MV=5:INC=-0.03125:LEV=160+40*WV:
    WV=WV+1:INVS=0:EXEC FILL_ARRAY:DWN=0:P
    X=922
UX 605   POSITION 13,15:? "BONUS - 500":M
    OVE ADR(SH$),840+SC,40:S=S+500:PAUSE 1
    5:POSITION 13,15:? "              "
EC 610   KEY=255:IF PL<1:OVER=1:ELSE :IF
    PL>0 AND WV>9 THEN WV=1:PL=PL+1:LEV=16
    0:POKE SC+PL+60,3:ENDIF
WF 615 ENDPROC
OX 620 ------------------------------
HJ 625 PROC BORDER
PP 630   FOR A=SC+1 TO SC+38:POKE A,128:N
    EXT A
WJ 635 ENDPROC
PB 640 ------------------------------
HU 645 PROC PAUSED
BD 650   POKE 764,255:POSITION 17,15:? "P
    AUSED":SOUND 0,10,8,0
HV 655   FOR A=0 TO 3:SOUND A,0,0,0:NEXT
    A
VC 660   DO :KEY=PEEK(764):IF KEY=33 OR N
    OT STRIG(0):EXIT :ELSE :POKE 77,0:LOOP
     :ENDIF
YA 665   POKE 764,255:POSITION 17,15:? "
       ":SOUND 0,10,8,FS
WC 670 ENDPROC
PW 675 ------------------------------
VU 680 PROC HIT_PLAYER
HS 685   ATF=0:POKE RAX,0:MOVE ADR(SPC$),
    SC+60+PL,1:PX=922:PL=PL-1:IF PL=0 THEN
     OVER=1
RP 690   FOR Q=1 TO 300:SOUND 3,RAND(90)+
    30,6,10:NEXT Q:FOR Q=10 TO 1 STEP -0.0
    5:SOUND 3,50,0,Q:NEXT Q
WV 695 ENDPROC
QX 700 DATA 16,24,12,24,48,24,12,24,0,24,
    36,36,60,126,231,165
VM 705 DATA 0,0,0,1,14,26,26,14,3,60,102,
    231,66,36,126,195,129,0,0,128,112,88,8
    8,112,192,36,24,129,90,90,129,24,36
JM 710 DATA 66,36,90,255,195,255,66,129,2
    4,36,90,255,231,255,66,36
```

Ian Finlayson's

TUTORIAL TIME

DON'T THROW IT AWAY!

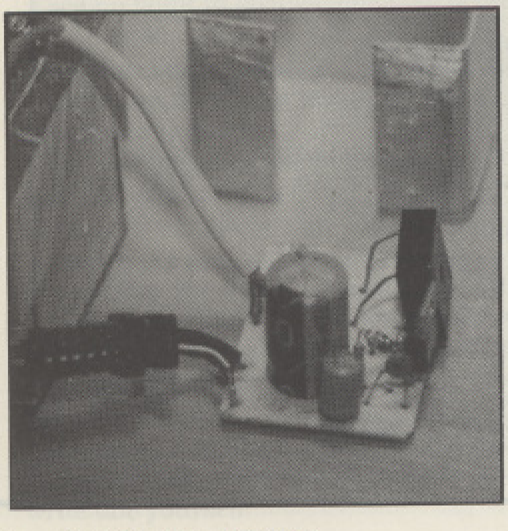
OR HOW TO REBUILD A POWER SUPPLY

WHY A HARDWARE TUTORIAL?

My Atari equipment is getting a bit ancient now and recently disaster struck. The symptoms were a bit strange, a sudden switch from normal operation to a screen full of rubbish combined with a sort of white noise on the sound channel. This is pretty distracting when you are trying to concentrate on a bit of work, and it totally disrupts the train of thought. The symptom was so severe that I assumed that I had lost my work (do you have the self discipline to always make backups at regular intervals?) - so I set about trying to find the fault. Switching off and back on did not cure the problem, and nor did disconnecting and reconnecting the various cable connections around the computer. I had just decided that something in the computer, possibly the video output generator had failed when suddenly everything went back to normal. I made a little progress (with regular backups this time!) and the good old Atari kept going for the remainder of the evening.

Next evening I set to work again, but after only about five minutes the machine failed again. I found that some semblance of a picture could be restored by taking the tuning of the TV channel away from its normal set point. With this awful, but fairly stable picture on screen it became apparent that the computer was still operating normally, my work was still there and all the Basic functions were working normally. I was even more certain that my original diagnosis was correct - it had to be the UHF Video modulator.

This erratic performance by the computer continued for some time, with periods of normal operation interspersed with break up of the displayed image, and all the time it got less and less reliable. Something had to be done, but what would it cost? Then a kind friend provided the solution, an old 800XL that had no power supply and was no longer required. I thought my troubles were over, but after ten minutes with this computer the fault recurred. The coincidence was too great - both computers could not have identical faults and the problem had to lie elsewhere. It was not the TV - that worked fine whenever the computer was not connected to it. It had to be the power supply. Fortunately George (he is the kind friend mentioned above) could lend me a power supply and this finally proved the point. Everything worked OK on the replacement power supply using either of the 800XLs.



I am still not certain why my power supply was causing a problem. I would have thought that almost any significant problem with power would have caused the computer to fail completely, and can only assume that there was some sort of noise or interference being generated by a failed component in the power supply that was disrupting the generated video picture.

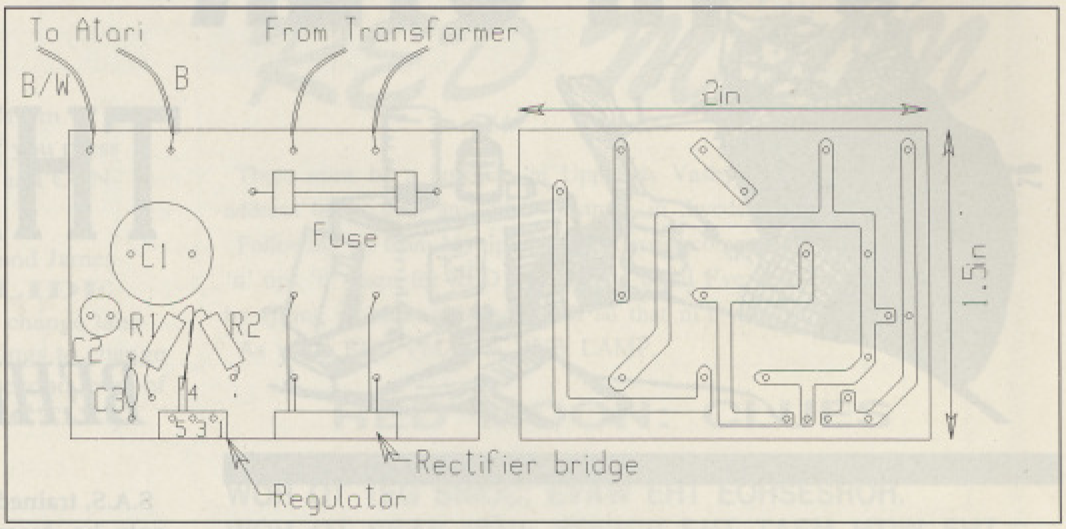
Well I had to find a replacement power supply or fix the one I had. I ended up fixing the old one, and the job was not particularly easy so I thought I might as well get something out of the experience by using it as a basis for this article - I hope it will be of help to some of you.

DISMANTLING AND EXAMINING THE OLD

At first I thought that once I managed to open the tough black plastic box of the old Atari power supply it would be a fairly easy task to locate the faulty component or components and replace them. How wrong can you be. I prised off the base of the box with some brute force (there are some plastic supports inside which have to be broken) and revealed a solid block of pink potting compound with some terminals sticking up to which the mains input cable and low voltage output leads were soldered. These power supplies are certainly not designed to be repaired!!

At this point I nearly decided to give up, but being of a stubborn nature I would not let it go, so I started to carve away at the potting compound with some care in case there was a component just below the surface that would get damaged. It soon became apparent that cutting away with a hobby knife, however sharp, would take days. I went on to use a crosscut saw and wood chisels, and soon found that the contents of the potting compound was in two halves - a fairly substantial transformer at one end and a tin plate bent around some electronic components at the other. Once the general shape of these two units was identified it was not too difficult to remove the bulk of the pink plastic from around them.

The next step was to get at the plastic inside the box-like tin plate with enough care to recover the individual components. It soon became clear that they could not be recovered completely intact and reusable, but I needed to identify them for replacement. Eventually all was disassembled and the components identified, but the only parts that could be reused, apart from the transformer, were a small printed circuit board and a glass fuse in its holder.

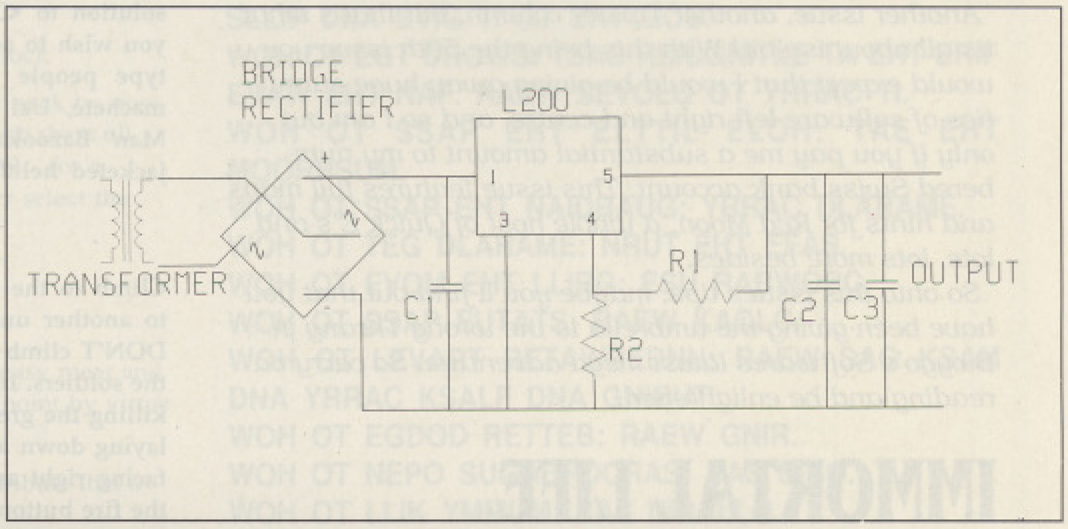


ASSEMBLY

The diagrams show the layout of the circuit board, the layout of the components and the theoretical circuit. If you reuse the old lead from the power supply to the computer it is quite easy to identify the lead with the white stripe as the positive and this gets round the need to identify the correct pins inside the multi-pin plug.

Assembling the components is only a matter of simple soldering. There are just a couple of items to note; first pin 2 on the voltage regulator is not connected, just make certain it is bent back or cut off so as not to touch any other connector. Second, the two resistors are connected directly to pin 4 of the voltage regulator if you are using the Atari PCB design. If you are using stripboard or your own PCB design it would seem to me to be better to solder pin 4 to the board and take off the resistors from adjacent points. Remember when soldering not to get too much heat into the electronic components, none of those used here are particularly delicate, but it is a sensible precaution to use a heat sink between the point of soldering and the component, particularly for the voltage regulator.

I have one serious caution to pass on to you (apart from the obvious note that the leads to the transformer carry full mains voltage which can give you a nasty shock!). The power supply delivers quite a high current to the computer, so the voltage regulator and the bridge rectifier get very hot. It is essential that these two components are firmly bolted to a sizeable heat sink before you use the unit to power up your computer. There is very little heat when the supply is open circuit, but it heats up rapidly when the computer is running and you are likely to cook the components if they don't have a thermal path to take the heat away. I have reused the tin plate which was around the components in the original power supply, and that does the job alright, but it does need a good air circulation.



TESTING

When I had rebuilt the power supply I checked its output voltage on open circuit with a small voltmeter and got a reading of 5.27 volts. This compares with 5.37 volts registered on a standard power unit. The specification plate on the power supply indicates 5 volts, but that is probably the on-line voltage which will be lower. It seemed to be about right so I plugged into my 800XL, held my breath and switched on. What an anticlimax, everything was quite normal!

FINALLY

Many thanks to those who have taken the trouble to write to me. I am not very good at answering quickly, but I will answer everyone who includes a stamped envelope eventually. Please note that I have no knowledge of programming languages other than Basic, but do keep writing.

My address is 60 Roundstone Crescent, East Preston, West Sussex, BN16 1DQ.

THE COMPONENTS

Here is a complete list of the components. Those I replaced I bought from Maplin and I include their part identification number and current price for information.

Recovered from original power supply:

Transformer
Fuse and holder
Printed circuit

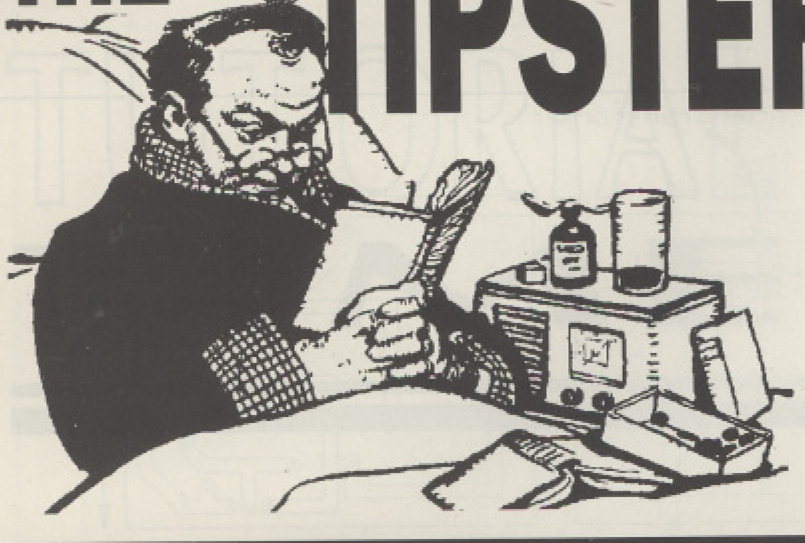
New components:

Bridge Rectifier	WQ57M	.98
Disc capacitor 0.1uF	BX03D	.16
Capacitor 100uF	JL19V	.14
Capacitor 4700uF	FM83E	.98
Voltage regulator L200	YY74R	1.46
Resistor 820	M820R	.03
Resistor 910	M910R	.03

		3.78

Of course there will be some postage to add, and if you are not going to dig through the potting compound to recover the little PCB you will need a small piece of stripboard to assemble your circuit on and a fuse and holder - 1.5 amp should suffice. You should always be able to recover the most expensive component, the transformer, but the casing of the power supply will certainly not be reusable, so you will need a box of some kind.

THE TIPSTER



Another issue, another Tipster column, but that's what its all about isn't it! With this being the 50th issue you would expect that I would be giving away huge quantities of software left right and centre, and so I am but only if you pay me a substantial amount to my numbered Swiss bank account. This issue features full maps and hints for Red Moon, a whole host of Quick E's and lots, lots more besides.

So onto this issues tips, maybe you'll find out that you have been giving the umbrella to the wrong Thrang in Bloggo's Softwares latest mega adventure. So carry on reading and be enlightened!

IMMORTAL LIFE

This issues first tips comes from Kevin Beresford of Salford. To start with he gives us the secret of immortal life in Ruff and Reddy in the Great Space Adventure (there's a title and a half!) If you hold down HELP, START, SELECT and OPTION when you press fire to start you begin with infinite time and lives. Kevion also takes the headache out of Head Over Heels. If you take Head to Heels' start room and make both of them face the wall that separates them, then switch auto-fire on on your joystick and press shift twice every time Heels is at the highest point of his jump soon Heels will be over the wall and they can join forces straight away.

One final one from Kevin is for you power hungry ego-trippers out there. If you go to location 13-04 in Mercenary then you can blow away a Commodore sign! (ha ha, chortle chortle, (cue evil laughter!!!))

ST DEMO SECRETS

From my own head comes a sort of exclusive in which I will divulge the secret or hidden demos in a couple of ST demos.

THE SYNTAX TERROR

Move the selector down to the blank bar in the credits section and type in the following:

HEMMELHERRGOTTSJESASWILLA

and you should be presented with the screen with all the "uglies" on it.

THE UNION DEMO

Move "Charlie" along the wall until he comes to a TEX symbol that is at his head height and you get what must be the first soundtracker ever done on the ST.

This issue's prize winner is Tobias Jorborn so the HOLOGRAM THINGY is winging its way to Sweden!!

To celebrate our 50th Birthday the prize next time will be

A POCKET COLOUR TV

That's right! Watch your favourite proggies anywhere, anytime but only if you get som,e cracking tips or maps off to The Tipster NOW!

THE BIG 50!

BEHIND ENEMY LINES

S.A.S. trained Tom Dickerson of Ashton, Northants has what can only be described as a Godsend because he has the complete solution to GREEN BERET. So your mission, if you wish to accept it Jim, is to destroy all of those nasty enemy type people with your very own (like mom use to make!!) machete, Uzi 9mm, sawn off shotgun and your Acme "Action Man" Bazooka and give those naughty enemy type people lead jacketed hell!!

LEVEL 1

Climb to the top of the red bridge girders and jump from one to another until they end. When you get to the missile lorries DON'T climb on top of them as you will probably get killed by the soldiers. Instead you should go along the bottom of the screen killing the green soldiers and the grey soldiers from the right by laying down and knifing them. At the end of the level lie down, facing right and holding out the knife all the while (hold down the fire button). You can also shoot the soldiers with the bazooka if you want.

LEVEL 2

Travel along the bottom of the screen using the bazooka and the knife as above to kill the soldiers. When the parachutist falls down lie down facing right and the bombs will not hit you. When the parachutist lands you can kill him just the same as the other green soldiers. Do the same for the second parachutist, when you get to the dogs you can kick, shoot or stab them (kick them by pressing fire, stab them by lying down and pressing fire. You don't have to be lying down to shoot them)

LEVEL 3

Walk along the bottom stabbing and shooting as for level 1. When you get to a big white building climb to the top and drop off the end. Kill the parachutist as described in level 2. You will need the bazooka for the helicopter at the end of the level. To do this go to the right as far as possible and then face left. As the helicopter lands and comes towards you shoot it. You will need to repeat this 3 or 4 times before it ends up as a heap of scrap.

LEVEL 4

Travel along the bottom stabbing and shooting as level 1. Use the method in level 2 if you encounter any parachutists. At the end of the level you will have to use the method for the end of level 1 i.e. lie down facing right and hold down the fire button all the while or you could also shoot them with the bazooka. When enough soldiers are killed you are greeted with the highly original message of "MISSION COMPLETE"

Also from Thomas Dickerson is a tip for those who can't cope with CRYSTAL RAIDER.

If you put a heavy weight on the space bar the game goes much slower so allowing you to complete it (maybe?).

QUICK E's

To start this issues section is one from Gary Snook from Southampton for **LODE RUNNER**. If you press CONTROL - F you get extra lives (up to 100 extra) and CONTROL - U to skip levels.

A couple of snippets come from Matthew Graham and James Hale of Leigh-on-Sea. For **ELEKTRAGLIDE** there are two tips, the first being that bouncing balls change lane every bounce and that bouncing balls are the only things to change lanes. The five objects that are needed to get to the second level of **BASIL THE GREAT MOUSE DETECTIVE** are as follows:

Cigarette
Gun
Dagger
Key
And something that looks like an Alarm clock

Noel Harris of Braunton must have a molten power pack by now as he sends a vast plethora of tips so lets wade through them all and see what he's got. First **ASTEROIDS** - for a higher score and an extra life just that little bit earlier select the following:

4 player
Melee combat
Flipover Defence

The other ships (not being able to move or fire) are easy meat and can be picked off quickly. Each ship is worth 1,000 point by virtue of the flipover defence.

In **WORLD SOCCER** the only attribute that a player needs is ability to win a game.

The **LIVING DAYLIGHTS** has a bug in it that has reversed the icons for two of the special weapons. These are:-

The pen is really the ghetto blaster
The ghetto blaster is really the pen

There are some unlisted special keys for **DOMAIN OF THE DEAD** and they are:-

OPTION - Music on - SELECT - Music off - START - Pause

(To unpause move the joystick)

Help WANTED ......
(Dead or Alive!)

Well there are just a few wanted tips this issue but all the same I know that someone out there has the answer either rolling around in their head or on a piece of paper that is stuck to the bottom of a month old festering coffee cup (as many of my programs are!).

Yogi may be smarter than the average bear but Alastair Mooney is having a hell of a time with ***YOGI & FRIENDS IN THE GREED MONSTER***. He asks how to rescue Yogi's friends and what is the secret of the blue buttons. Well what are you waiting for get writing!

Steven Head needs help on ***DOMAIN OF THE DEAD*** as he is having great difficulty in completing it. He also wants to know if there is any way to carry on from where you left off in ***RUFF AND REDDY***, ***GUNLAW***, ***SIDEWINDER***, ***GRAND PRIX SIMULATOR*** and ***BOMBFUSION***.

Please keep sending in all your hints, tips, maps and solutions or anything that you have. I still haven't had any response, apart from Tobias's, for adventure hints, tips and maps. I need as many and as much as possible to make this column the best and most informative in any Atari magazine! So get out the writing pad and pen and get writing. It only takes a few minutes work to get world-wide fame and glory.

Send all your hints and tips to:

THE TIPSTER, NEW ATARI USER, P.O. BOX 54, STAFFORD, ST16 1DR

RED MOON

There must be a postman in Upplands Vasby that knows the Page 6 address better than any other postman in Sweden.

Following on from his tips from last issue comes Tobias Jorborn's hints 'n' tips 'n' maps for RED MOON. As usual I've been boiling my brains by typing in backwards, so much so that m'I won gniklat sdrawkcab!!! As usual BUR PMAL = RUB LAMP.

RED MOON: CLUES

WOH OT TEG SNIOC: EVAW EHT EOHSESROH.
WOH OT SSAP GOD: NOSIOP EHT TAEM HTIW EHT SLLIP DNA EVIG TI OT EHT GOD.
WOH OT EGT DROWS: TSAC HSIUGNITXE TA EHT ERIF EVAW EHT NAF. RAEW SEVOLG OT YRRAC TI.
WOH OT SSAP EHT ELTTIL ELOH: TAE EHT MOORHSUM.
WOH OT SSAP EHT NAIDRAUG: YRRAC DLARAME.
WOH OT TEG DLARAME: NRUT EHT EFAS.
WOH OT EVOM EHT LLIRG: ESU RABWORC.
WOH OT SSAP EUTATS: RAEW KAOLC.
WOH OT LEVART RETAWREDNU: RAEW SAG KSAM DNA YRRAC KSALF DNA GNIBUT.
WOH OT EGDOD RETTEB: RAEW GNIR.
WOH OT NEPO SUGAHPOCRAS: YAS SIBO.
WOH OT LLIK YMMUM: YAS NIBALLO.
WOH OT SSAP DICA LOOP: PORD EHT KLAHC KNUHC NI TI.
WOH OT DLIUB EGDIRB: PORD EHT NROCA TA EHT MSAHC DNA DAER LLORCS.
WOH OT SSAP ERIPMAV: YRRAC XIFICURC.
WOH OT SSAP DER ENIL: BUR TI TUO.
WOH OT EES NI EHT MOOR FO GNIDNILB STHGIL: PORD KCALB LLAB.
WOH OT KLAW NI LATEM MOOR: RAEW STOOB.
WOH OT TAEB EHT NOGARD: EVAW NAF.
WOH OT NIW EHT EMAG: EKAT EHT NOOM OT EHT ENOTS ESUOH.

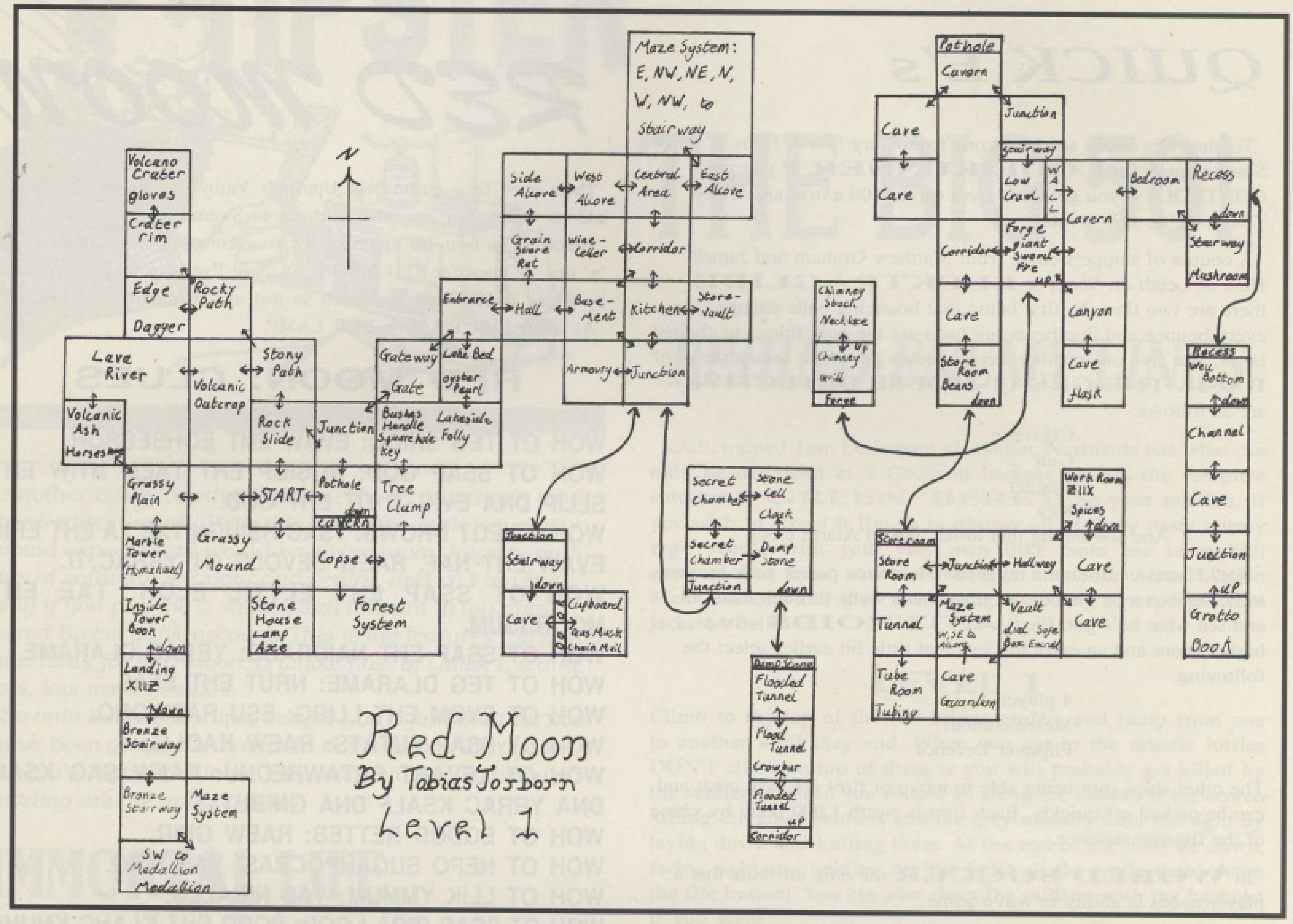
TREASURES

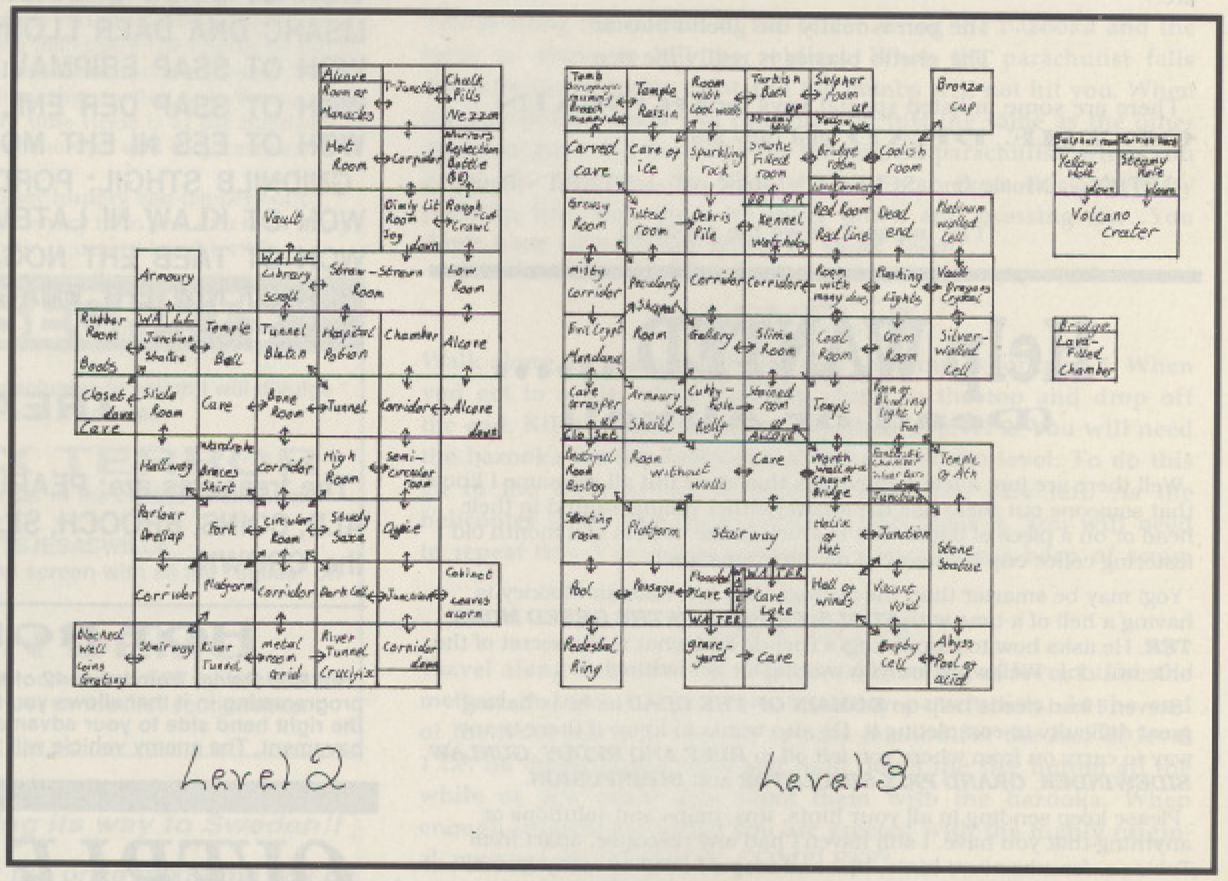
The treasures are: PEARL, BOOK, MEDALLION, EMERALD, COINS, BROOCH, SILVER BARS, BLACK BALL and the CROWN.

HOT ROD RAIDER

Hot Rod Raider from Issue 42 of New Atari User has a useful bit of programming in it that allows you to use the barriers which appear on the right hand side to your advantage, when you see one - drive on the pavement. The enemy vehicle will follow you into the barrier.

OVERLEAF - MAPS OF RED MOON

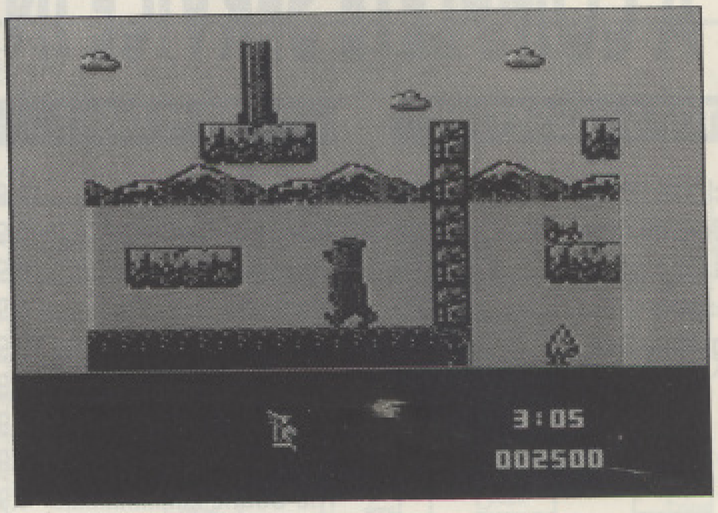




RED MOON

mapped by Tobias Jorborn

YOGI'S GREAT ESCAPE



Another welcome game in Hi Tec's budget series based on famous characters from the cartoon world of Hanna Barbera. Yogi Bear is well known to thousands of young (and not-so-young) TV cartoon followers for his zany capers in Jellystone Park and his ever-more-cunning but not always successful attempts to outwit the Park Ranger.

YOGI'S GREAT ESCAPE begins when Yogi and his faithful friend Boo Boo wake up from their winter hibernation to resume the traditional pastime of relieving innocent campers of their picnic baskets. A few days into the season, Ranger Smith receives the disturbing news that Jellystone Park is to shut down and all the animals are to be shipped off to the zoo. Yogi hears of the impending closure and decides to head for the freedom of New York City before it's too late. With Ranger Smith and pet tracker dog in hot pursuit, Yogi attempts to make his great escape.

The adventure kicks off in Jellystone Park and proceeds through forest, wild west, 'Mumbo Jumbo' marsh and funfair scenarios before reaching a conclusion in the The Big Apple itself. The scenery on each level scrolls horizontally as Yogi runs and bounds across countless walls and platforms, his objective to reach the exit before a countdown timer signals his appointment with the zoo. Snakes, ravines, Indians and many other nasties must be avoided whilst roast chickens, toffee apples, hamburgers and other edible objects should be consumed to gain a useful points bonus at the end of each section.

Regrettably, with the exception of Yogi himself, the graphics fall short of the standard I'd expect from Hi Tec. Gameplay is confined to an unnecessarily small window in the top two thirds of the screen and colours on the first level make Jellystone Park seem more like the Sahara Desert! There are frequent delays during play since the levels load in separately from tape - run out of lives and you have to rewind back to the beginning. I'd be willing to overlook these drawbacks if there was musical compensation but, alas, the sound effects are equally unremarkable.

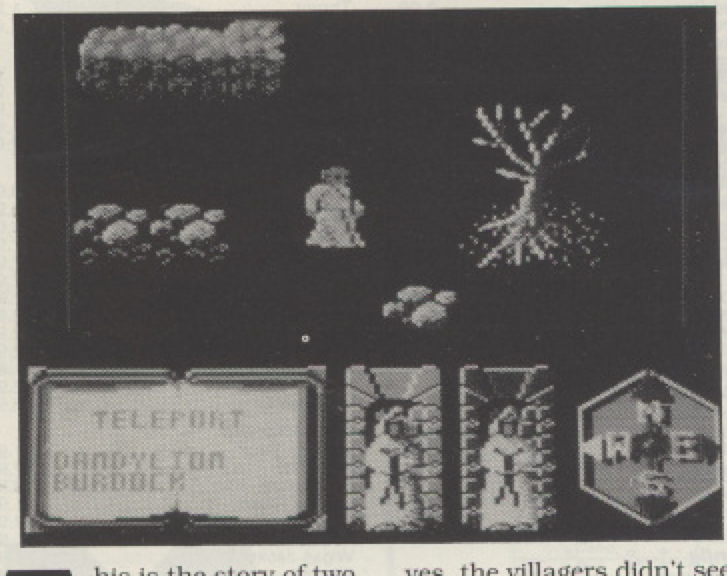
On a positive note, Yogi's Great Escape is an addictive game and, though clearly not in the same class as Ruff 'N Reddy (see last issue), it's well worth checking out.

Show your appreciation for Yogi and hopefully we'll enjoy many more new releases from Hi Tec.

Title:	**YOGI'S GREAT ESCAPE**
Publisher:	**Hi Tec**
Price:	**£2.99**
Players:	**1**
Loading:	**15'10"+**

Reviewed by Paul Rixon

FEUD



This is the story of two brothers, Leanoric and Learic, who also happen to be wizards. They had lived in the small, tranquil village of Little Dullford for as long as anyone cared to remember, and seemed to spend most of their time collecting potions, mixing spells and doing all the other mystical things that wizards were thought to do. The pair had been known to occasionally argue (one summer Leanoric turned his brother temporarily into a frog) but as long as they kept themselves to themselves, the villagers didn't seem to mind.

Then one day the peace was shattered by an enormous commotion. At first there was shouting, then explosions, bangs and other events that witnesses found too shocking to discuss! Leanoric later moved out to a new hut on the far side of the village. It was more than a minor disagreement - a feud had begun, and the villagers knew they had better not get in the way!

And so the scene is set for FEUD, a graphical adventure based on the conjurers' attempts to destroy one another. You become Learic whilst the computer commands the actions of Leanoric. The screen view consists of detailed, well-shaded scenery in the upper half of the screen and status information below. As your character traverses the kingdom, the display window 'flips' to reflect the changing locations. To the left, a spell book illustrates the magic at your disposal.

Initially you don't possess any special powers so the first task is to explore the surroundings for some appropriate ingredients. When you acquire something useful a corresponding entry is highlighted in the spell book, but before you can use a spell you have to transport the ingredients back to base for mixing in your cauldron. Once you've found a sufficient number of spells you should head towards Leanoric and attempt to cast them - but watch out, or he'll do exactly the same to you!

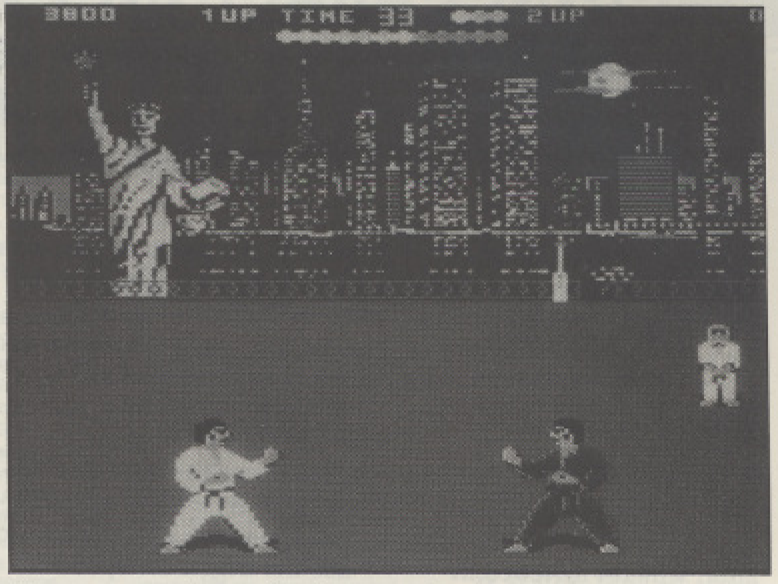
It's not difficult to get lost in the kingdom and mapping is almost essential. Thankfully, once you've located a 'teleport' spell you can return to the cauldron quicker than it takes to say 'hocus-pocus'.

This must be one of Mastertronic's best releases yet. Great graphics, good sound and an interesting theme. It's a pity there's no two player option as the game would seem to be an ideal candidate. For the solo wizard, Feud represents excellent value.

Title:	**FEUD**
Publisher:	**Bulldog (Mastertronic)**
Price:	**£1.99 cassette**
Players:	**1**
Loading:	**20'30"**

Reviewed by Paul Rixon

INTERNATIONAL KARATE



Karate simulations aren't as abundant on the Atari as on other micros but anyone who's experienced INTERNATIONAL KARATE (or its American counterpart, World Karate Championship) should have no cause for complaint. Not only is it a truly brilliant game, it's arguably better than the 16-bit conversions!

After loading you're greeted with an atmospheric soundtrack and a demonstration giving a taste of the action to follow. The background scenery is formed by a superb drawing of Australia's Sydney Harbour Bridge and Opera House. In the foreground computerised opponents dive spectacularly around performing dozens of different karate moves. Initial options allow you to select a one or two player match and whether or not to have music and/or sound effects continuing throughout the game.

In each bout of International Karate your objective is to inflict maximum damage on your opponent before the expiry of a timer, whilst avoiding injury yourself. The moves are carried out by a combination of joystick directions and trigger presses, giving a total of sixteen possible actions. Each successful hit is rewarded by either a half or full point, and a score determined by the complexity of the move and how well it was performed. The first player scoring two or more points wins the bout and gains a bonus based on the amount of time remaining. If the timer runs out completely, the winner is the player with the highest score or, if it's a draw, the one who tried the hardest! Later on there are special stages where you take a break from fighting and have to prove your skill at dodging weapons and smashing piles of bricks. As you accumulate more points, you're supplied with an appropriately coloured belt and eventually allowed a slot in the coveted hall of fame.

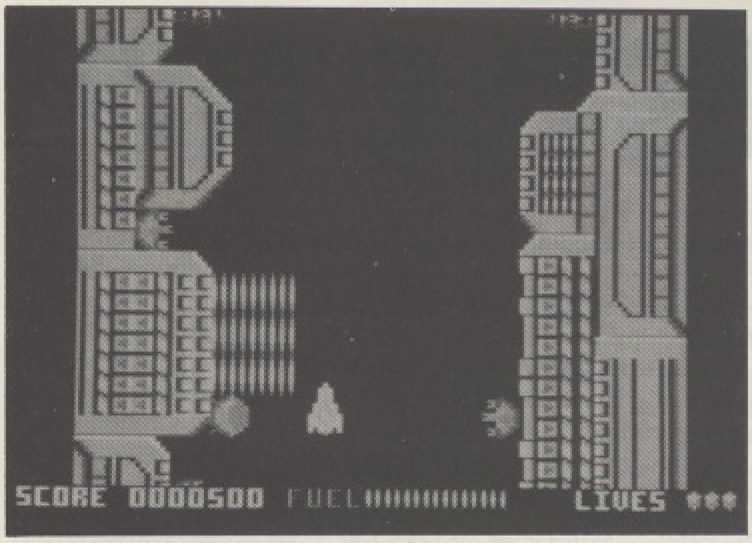
The visual delights of this game have got to be seen to be believed. The graphics really are absolutely stunning! The disk version features many additional backdrops of worldwide landmarks which load in automatically at regular intervals. The animation is fast (the speed of play can be adjusted) and incredibly smooth. Music and sound effects are also first rate.

Without a shadow of doubt, International Karate is an all-time computer classic. If you haven't got it then you're missing out on one of the best pieces of software entertainment ever devised for your computer.

Title:	**INTERNATIONAL KARATE**
Publisher:	**System 3**
Price:	**£6.99 disk**
Players:	**1/2**

Reviewed by Paul Rixon

SIDEWINDER II



Mastertronic present yet another scrolling blast 'em up from PAL Developments - SIDEWINDER II. The title is a bit deceptive since the game is not actually related to the original Sidewinder, released by Futureware over four years ago. Fortunately, it's not quite as difficult either!

In the initial mission briefing you learn that your planet's long range scanners have detected a huge mass approaching from the direction of an alien home-world. Reports from scout craft indicate that it's an enemy battle station, somewhat larger than the one you destroyed in a previous 'Sidewinder' exercise. A computerised selection procedure has chosen lucky-old-you as the only suitable candidate to attack the advancing menace. You've been instructed to infiltrate the station via an air inlet tunnel - the catch is that it's lined with defensive units, automatic vent doors, and patrol drones with orders to prevent your intrusion.

Sidewinder II is a traditional vertical scroller - the aim is simply to survive as long as possible by avoiding or annihilating the innumerable aliens and obstacles. Every so often you're presented with a chance to collect a floating capsule that can add an extra gadget to your ship, such as enhanced fire power or a limited protective shield. Any contact with the surrounding installations or enemy fire rapidly reduces your fuel supply. There are three spare ships in reserve.

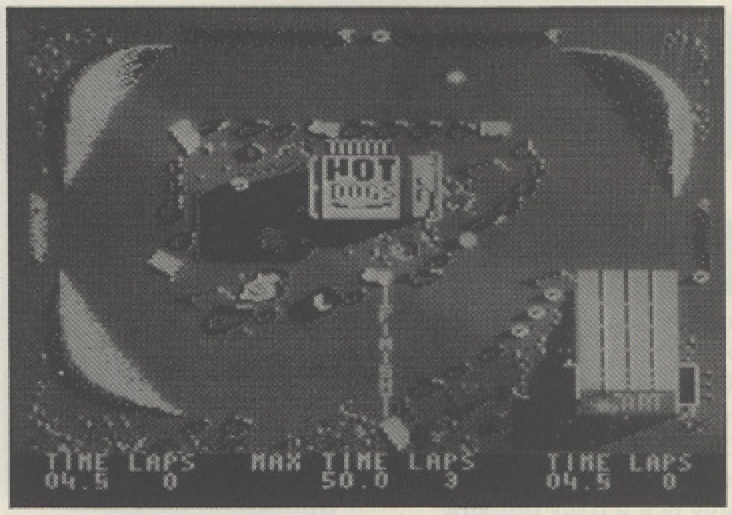
Presentation in both the audio and visual sense is of a pleasantly high standard, from the catchy (and strangely familiar?) opening music to the clear, detailed and smoothly scrolling background scenery. An unusual feature of the game is that by pulling back on the joystick you can stop the scrolling completely and give yourself ample time to work out the best route through the battlefield ahead. This means that Sidewinder II should cater for a wider range of abilities than many other games of its genre. The only bad thing I can find to say about it is that it's a rather monotonous challenge with no surprises to keep you hooked on the higher levels. However, this criticism could be levelled at almost every other shoot 'em up in existence. Thousands of arcade addicts don't seem to be concerned!

Sidewinder II is one of the best budget-priced shoot 'em ups currently available. It's not a patch on Tail Of Beta Lyrae (then what is?) but even so it's well worth the asking price!

Title:	**SIDEWINDER II**
Publisher:	**Mastertronic**
Price:	**£2.99**
Players:	**1**
Loading:	**11'24"**

Reviewed by Paul Rixon

BMX SIMULATOR



New 8-bit games are sadly few and far between nowadays but it's a good opportunity to examine some of the older titles that previously may have been missed.

Codemasters' BMX SIMULATOR is quite similar in concept to their Grand Prix Simulator, which I reviewed in issue 47. The game presents a series of screen-sized circuits which the players' observe from a birds-eye perspective. Two small BMX riders line up on the starting ramp and wait for the signal - then they're off. You can opt to challenge the computer or a human competitor, but in either case your objective is not only to come home in front of your opponent but also to finish the race before the expiry of an increasingly unforgiving timer. Thankfully controlling the BMX doesn't involve any 'Decathlon' style stick waggling - you steer with the joystick and use the trigger for speed adjustments.

The graphics are beyond major criticism, although they do suffer from the curiously prevalent drawback of yukky brown and yellow colouring - I'm beginning to wonder if my monitor is in need of a service! The scenery includes lots of obstacles and other features that should be well familiar to BMX fanatics - 'burms', ramps and rough ground to name but a few.

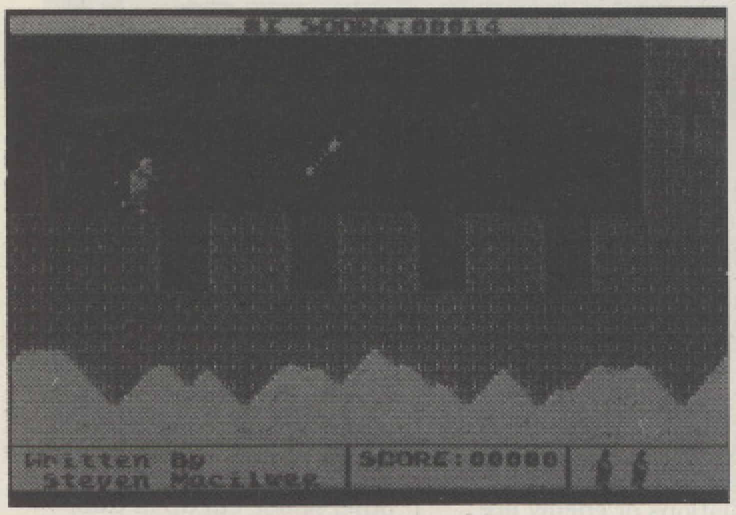
The sound effects comprise an excellent introductory tune by David Whittaker, several other musical interludes at various stages of the game and a not entirely convincing 'bike' noise as you furiously pedal around the circuits. At the end of each level you can select a unique 'Action Replay' function to see how your performance might be improved - in slow motion, if you wish.

It's just as well there's a two player option as the solo game can prove to be more than a little frustrating. The computerised cyclist enjoys collision immunity so no matter who causes a crash, it's always you who's sent sprawling into a heap! In all there are seven different circuits. As you progress through the levels the time allowance becomes more and more restricting, to the extent that eventually you can't afford to make the slightest error of judgement.

Like its motor racing relation, BMX Simulator is an addictive game that's best enjoyed as a one-to-one challenge with a human opponent. The courses eventually become so demanding you begin to think they can't be completed - but then, maybe it'll just take one more go ....

Title:	**BMX SIMULATOR**
Publisher:	**Codemasters**
Price:	**£2.99 cassette**
Players:	**1/2**
Loading:	**13'15"**

Reviewed by Paul Rixon



CASTLE TOP

What do Frenesis, Talladega and Cops 'n Robbers all have in common? The answer is that in my opinion they're all programs to avoid! Over the years I've seen brilliant games, average games and terrible games but these three stand out as the worst of the bunch. In the past, Alternative Software's policy of re-releasing oldies has kept them out of the 'nasties' league table, but this time I think they've finally outdone the competition with CASTLE TOP - a game that can only really be described as Bad with a capital B!

It's 1502 - Columbus is still celebrating his discovery of America, Shakespeare hasn't been born and Atari has no more significance than a move in a Japanese board game. Anyway, the story is that your childhood sweetheart and bride-to-be, Jessica, has been captured by the evil Lord Frederick of Alconbury Castle. Obviously you're pretty keen to rescue her so, as a noble knight in shining armour, you bravely head off for the tyrant's castle. Meanwhile the nasty Lord Frederick has, as you might have expected, prepared more than a few surprises to greet you. What you must do is overcome the dangers, save the day, win the girl and put a stop to Lord Frederick's reign of terror.

The graphics in Castle Top leave a lot to be desired. I'm no historian but I'm pretty certain the knights of old didn't turn out in pink helmets and fluorescent green armour! The animation, or rather the lack of it, is another peculiarity - instead of walking, the multicoloured knight slides awkwardly along on one foot! When you press the joystick trigger, the knight jumps with an accompanying beep of the sort that beginners produce in their first encounter with the Basic 'sound' statement!

Your task is simply to guide the knight across the castle battlements, leaping where appropriate to avoid spears, arrows and other unpleasant objects. The jumps require an almost impossibly accurate sense of timing and just when you think you're starting to make progress, the smallest mistake can send you straight back to the beginning, since you're only provided with two additional lives. Annoyingly you can't commence a new game with the trigger but are forced to reach for a console key instead. More seriously, the game occasionally crashes into a weird state of 'slow-motion'.

Let's not mince words: I think this game is RUBBISH!!!

Title:	**CASTLE TOP**
Publisher:	**Alternative Software**
Price:	**£1.99 cassette**
Players:	**1**
Loading:	**4'55"**

Reviewed by Paul Rixon

contact ... contact ... contact ... contact

FOR SALE

XL SYSTEM: 800XL with two 1050 disk drives, 1010 data recorder, Boss joystick, £500+ games, business programs etc. £210 o.n.o. Tel. (0733) 238082

65XE: 65XE with XC12 data recorder, £100 worth of software inc. Assembler Editor, loads of back issues of Atari User and Page 6 plus few books. Contact Blair on (0273) 609427 after 6pm or write to 27 Brading Road, Brighton, E. Sussex, BN2 3PE

XL SYSTEM: 800XL with 1010 recorder, all leads and manuals plus games (approx 30). £75 plus P&P. Phone 0536 710514 after 6pm

CASSETTE RECORDER: 1010 cassette recorder, unused. £15. 65XE GAMES CONSOLE with light gun, 1 built-in game plus two cartridges, almost half price at £60, still in box, approx 3 dozen cassettes for Atari XL, £10. Please contact Jean Circuit at 12 Belgrave, Long Marton Road, Appleby in Westmorland, Cumbria, LA16 6XZ or telephone 07683 51861

65XE SYSTEM: 65XE complete with XC12 cassette, two joysticks, games on cassette, 10-PRINT and Simulated Computer. Mint condition. £70 o.n.o. Also 800XL computer (no power pack), £25. Please phone (0305) 852276 ask for John Aston, Dorchester, Dorset

XL SYSTEM: 65XE computer, XC12 cassette recorder and over £170 worth of games. Everything still new and boxed and in excellent condition. Also includes two new joysticks. Will sell everything for £130. No splits and buyer must collect. Please ask for Paul Garbett at 21 Harrison Street, Bloxwich, Walsall, West Midlands and please come after 6pm

1027 PRINTER: 1027 LQ printer in excellent condition complete with PSU, cables etc. Offers around £40. Phone Mike on 0302 834410 after 6pm

BOOKS ETC.: Zork 1, The Pawn, Mini Office II, Atariwriter Plus, £7.50 each. Music Construction, Smash Hits 7, Mercenary parts 1 & 2, £4 each. Free postage. Also books, magazines in binders, languages etc., negotiable. Phone Clive on 0903 755462 evenings/ weekends

XE SYSTEM: 65XE computer console, XC12 datacorder and 11 games, 2 joysticks and Flight Simulator II, all manuals and instructions, boxed, £80 o.v.n.o. After 6pm. Please contact Richard on (030678) 327 (Surrey)

XL SYSTEM: 800XL computer, 1010 data corder, over £200 worth of games, joystick, manuals, leads, mags etc. excellent condition, little used, bargain £95. Will not split. Tel. (02406) 6143 (Aylesbury, Bucks)

MAGS & XC11: Complete collection of 8-bit Atari User magazines and PAGE 6 Issues 7 to 30 in binders. Also XC11 cassette recorder, excellent condition. Offers to Adrian on (0707) 330393

DOUBLE SYSTEM: Two 800XL's, two 1050 disk drives, one with US Doubler, one with I.S. plate, 1 joystick (Quickshot II) approx 350 disks in 4 100-disk boxes, PAGE 6 Issues 7-41, Tech. Ref. Manual (400/800), a few other assorted manuals and magazines. £250 o.n.o. Contact Neil on Brighton (0273) 606643 any time

XL SYSTEM: Atari 800XL computer, 1050 disk drive, 1010 tape deck with tape and disk software and books, £100. List of items available. Tel. (0995) 604219 after 6pm.

XL SYSTEM: 800XL (256k- 130XE compatible) and 1050 disk drive, £100. Flight Simulator II with 8 scenery disks, £50. Disk and tape software and books, list available. Touch tablet with cartridge and disk software, £20. Tel. (0995) 604219 after 6pm

VARIOUS: Speech Synthesiser (July/August '87 Atari User) professionally made with software and instructions, £20; 45 cassettes, all sorts (no splits), £25. SAE for list. Swap both for 810 drive. M.C. Cresswell, 144 Radipole Lane, Weymouth, Dorset, DT4 0TG

1050 DISK DRIVE: 1050 drive with leads, £45 or nearest offer. Tel. STOKE 286283

SELL/SWAP: Damaged 65XE, XC12 recorder, over £250 worth of software, 3 joysticks and magazines. Will throw in free Atari VCS with 3 sets of paddles (XE compatible), touch pad and 16 cartridges. £135 o.n.o. or swap for system with disk drive. Letters to Steven, 62 Poplar Street, Grangemouth, Stirlingshire

XE SYSTEM: XE games system, XC12 tape deck, loadsa games, £100. Tel. Malc (0246) 205208 after 5 pm (buyer collects)

MAGAZINES: Atari User magazines 1985 (May to Nov.), 1986 (March to Dec.), 1987 (May to Dec.), 1988 (June to Nov.) Atari ST User 1986 (March to Dec. Vol. 1 No. 1 to No. 10). 46 in all. In one lot sale. Offers to 0776 83265

MAGAZINES: NEW ATARI USER & PAGE 6 magazines - issues 22, 24, 29, 30, 31, 35, 36, 37, 39, 40, 41, 42, 45 all in perfect condition, as new only IR£1.00 each, a true giveaway! Write to me please: Richard Harpur, 4 Castleredmond Estate, Middleton, Co. Cork, Ireland or FAZ 010-353-21-631965

XL SYSTEM: 800XL with 1050 disk drive, 1010 data recorder, leads, manuals, books, magazines, 20 brand new disks, joystick, games, ROMs, tapes, disks. All you need for hours of fun. £200 o.n.o. Sold as complete system only. Can deliver within reason. tel. Crewe (0270) 873109

EXCHANGE: I have recently completed the 8-bit disk version of Infidel and would like to swap it for any other Infocom but preferably Planetfall. I also have the following cassettes to exchange: Pirate Adventure, The Count, Quest for Eternity, Mordons Quest, Return to Eden and Hacker. Please contact Mark on 0530 560062 after 6pm

XE SYSTEM: 130XE computer with 1010 data recorder, touch tablet, joystick, manuals, 15 games on cassette, 10 games on disk, excellent condition, £80. Buyer collects. Phone Burnham (0628) 663004

BOOKS & SOFTWARE: Mapping The Atari (Revised), £6; Assembly Language Programming, £4: Compute!'s Second Book of Graphics, £4; Advanced Atari Basic Tutorial, £3; The Atari Book of Games, £3; De Re Atari (with binder), £5; 6502 Assembly Language Programming, £7; Astronomy with your Personal Computer, £3; Disk software - Movie Master, £4; Silicon Dreams, £5; Jewels of Darkness, £5. Phone Andy Furnell on 0522 690825

INTERFACE: Centronics interface, suitable for a variety of printers, £18; 40 Great Flight Sim. Adventures book, £3; Flying For Fun, general guide to whet your appetite, £2. Phone Preston (0772) 725288 after 6.30 pm

HARDWARE: Atari 1027 printer, £50; XC12 tape recorder, £15; 130XE Secam + XC12 + Flight Simulator + Joystick, £50; 800XL Secam £20. All plus shipping and posting. NEW in boxes. Daniel Carrodano, Les Oliviers B1, 326 Montee de la Calade, 83300, Draguignan, FRANCE

XE SYSTEM: 130XE, 1050 disk drive with happy enhancement and games, £125 o.n.o. Buyer collects or pays postage. contact Peter Brazier, 7 Giles Gardens, Margate, Kent, CT9 4BD

GAMES MACHINE: Atari 2600 games machine, paddles, leads, games, £30; Atari 2600 multicartridge with 32 games on it! (Includes River Raid, Berserk, Pacman etc. Offers. 800 XL, 1010 tape deck, 1050 disk drive, discs, games, light pen, v.g.c. £185. Phone Urfan Redhill 0737 772116. Will split and post.

XE SYSTEM: XE VGS, XC12 datacorder, lightgun (with game), Flight Simulator II (on ROM), 1 joystick, £40 worth of cassettes, 3 Atari User magazines, all manuals and leads. Excellent condition. Will sell for £115 o.n.o. No splits. Phone 0785 841140 and ask for Chris between 6pm and 9pm

130XE SYSTEM: 130XE and 1050 disk drive, both in excellent condition, £150. I can deliver within or near Essex, otherwise buyer collects. Tel. 0268 784637

XE SYSTEM: 65XE, XC12 data recorder, joystick, over £200 worth of games and mags, £250. Phone Phil on 0454 311025 after 6pm. Buyer must collect.

1027 PRINTER: 1027 letter quality printer in good condition with original packaging, £50. Buyer collects or pays postage. Tel. 0268 784637

XL SYSTEM: 800XL, 1050 disk drive, 1010 cassette, 2 joysticks, dust covers, 100's of games on disk and some on tape. All boxed and in excellent condition with all manuals. £120 only. Ring Kings Lynn (0553) 672309 any time. Buyer collects

GAMES: I have some tape based Scott Adams adventures and some other oldies like Wizard of Akryz for £3 each. Also other adventures and games for £1 and a joystick for £2. Anyone interested? Write to Simon Fatakis, 16 Lascotts Road, Wood Green, London, N22 4JN

XL SYSTEM: 800XL, 1050 disk drive (with Happy), 1010 cassette, 450 games, complete set-up, £250. Tel. 0782 512417

THE COMPLETE OUTFIT!: 800XL, 1050 disk drive, 1029 printer, Xetec Centronics Interface(Nice!), joysticks, loads of software inc. serious spreadsheet, word-processor etc. classic games, TWO bound volumes of Atari related mags, books inc. Mapping The Atari and ALL units AS NEW still with ORIGINAL boxes. Sadly parting company ALL for JUST £150. Ring Adam on (06285) 23501 any time

XE SYSTEM: 65XE, XC12 data recorder and 1050 disk drive, £100 worth of software on disk and cassette. Only £150. Tel. Bicester (0869) 346939

DISK DRIVE ETC.: 1050 disk drive with £150 worth of software, 1029 dot matrix printer with software, £90. Tape and ROM cartridge software, over 70 titles, only £30 (no splits). Must sell. Phone 0232 714155

XE SYSTEM: 130XE and data recorder; Mapping The Atari; Assembler Cartridge; over 50 magazines; cartridge games; loadsa cassettes all in excellent condition, boxed with relevant manuals, £100 o.n.o. Contact Dave after 6pm weekdays, any time weekends on (0652) 34161

VARIOUS: Due to the demise of my 800XL I have a range of software, hardware (including disk drives), books, manuals and magazines open to sensible offers. Please write to W. Galashan, 123, Norbreck Close, Warrington, WA5 2SJ or phone 0925 723273 after 8 pm. For full details send an SAE.

CASSETTE GAMES: Approx 150 games on tape and ROM for XL/ XE. Send £10 for a pot luck assortment of 10 games (all originals). Also 65XE with power supply, £30 inc. postage. B. Paterson, 46 Merton Way, Ponteland, Newcastle-upon-Tyne

130XE SYSTEM: 130XE, XC12 cassette, XF551 disk drive, 1209 printer, lots of cassette games, joystick, manuals etc. £350 o.n.o. Yorky 256k memory upgrade, new, unused, £55 no offers. S. Young, 94 Mangravet Avenue, Maidstone, Kent, ME15 9BE

XL SYSTEM: 800XL, 1050 disk drive with US Doubler, 2 joysticks, 100 DS disks in boxes full of games and utilities, 4 volumes of Atari User in folders, few copies of PAGE 6 mag with disks, also some books, £250 o.n.o. Tel. 0753 853166

XL SYSTEM: 800XL and 1050 disk drive and 1029 printer with all cables, Mini Office II, £250 for the lot, no splitting (inc. delivery). Ring Mr. D. Hill 0776 83265 any time

XL SYSTEM: 800XL with 1050 disk drive, joystick plus many games and original manual, £200 or 800XL with 1010 data recorder, joystick but very few games again with original manuals, £120; Centronics Interface and printer cable, £5. Ring Darren on (0778) 346865 (Peterborough) evenings

XL & DISK DRIVE: 800XL and 1050 floppy disk drive, both unboxed but with manuals, fully working, £120 o.n.o. Atari Lynx with 3 games (Klax, Electrocop, California Games), £120 o.n.o. or £200 for the lot. Buyer collects. Tel. Adrian (0522) 720872 after 6.30 pm

XE SYSTEM: 130XE with 1010 data recorder, joysticks, games and books, hardly used and stored for the last three years, £125 o.n.o. Tel. 0277 652427 (Essex)

QUICK SALE STE: Quick sale wanted for Atari 520STE with £700 worth of top quality software and £120 worth of mags. £300, no offers. Ring Matthew on (0483) 720533

600XL SYSTEM: 600XL with 64k expansion, 1050 disk drive with I.S.P. Plate, 1010 tape deck, 300 disks with 3 disk boxes, all in mint condition, £295. Buyer collects. tel. 0246 236122 after 5.30 pm

MAGS & XC11: Complete collection of 8-bit Atari User magazines and PAGE 6 Issues 7 to 30 in binders. Also XC11 cassette recorder, excellent condition. Offers to Adrian on (0707) 330393

WANTED

JET SET WILLY: Wanted for XL/ XE. Will pay £1.50. Tel. Mark on Newcastle 091 259 1426 after 5pm weekdays, any time weekends or write to 11 Percy Court, Percy Main, North Shields, Tyne & Wear, NE29 8JG

FLIGHT SIMULATOR II: Wanted on cartridge with flight manuals and maps. will pay up to £20 inc. post & packing. Write to Malcolm Attard, Meadow Sweet, Triq il-Qoton, Naxxon, Malta

DOS 2.5: Preferably with manual, 1050 disk drive with leads. Reasonable prices paid. Contact Richard Burt, 51 Gracemount Drive, Edinburgh, EH16 6EZ

DISK DRIVE: Wanted, 1050 disk drive in working condition with power pack. Cash waiting. Also Buck Rogers cassette or disk. Tel. (Salisbury) 0722 744162

ALTERNATE REALITY: Can anyone supply me with a game called Alternate Reality and any of the accompanying games on disk? Please write to Perry at 138 Jedburgh Drive, Darlington, Co. Durham, DL3 9UW

MORE OVERLEAF ☞

FOR SALE ... WANTED ... PEN PALS ... ADVICE ... HELP ...

BACK ISSUES

The following back issues of NEW ATARI USER are still available

Issue 31	Issue 41
Issue 32	Issue 42
Issue 33	Issue 43
Issue 34	Issue 44
Issue 36	Issue 45
Issue 37	Issue 46
Issue 38	Issue 47
Issue 39	Issue 48
Issue 40	Issue 49

DISKS ARE AVAILABLE FOR ALL THESE ISSUES

BACK ISSUES are £1.75 each in the UK (inc. post & packing), £2.40 for Europe or surface mail elsewhere and £3.50 for Air Mail outside Europe. Prices include postage
ISSUE DISKS are for any 48k or 64k 8-bit Atari
Each disk is £2.95. Postage FREE in U.K.
Overseas add £1 per order (any number of disks)
Send your order to
PAGE 6, P.O. BOX 54, STAFFORD, ST16 1DR, ENGLAND
ACCESS and VISA accepted. Telephone 0785 213928

COMING NEXT ISSUE ..

ST EDUCATIONAL SOFTWARE
HAT SOFTWARE
JUNIOR TYPIST
BETTER MATHS

ST PRODUCTIVITY
HOME ACCOUNTS
DGBASE

plus much more

contact extra... contact extra ...

WANTED

RACING DESTRUCTION SET: Has anyone got this game they are willing to part with for under £2? If so contact Steve. Tel. 0423 869127

ST OR AMIGA: Must be in good condition with games, joystick and mouse. Will pay up to £220. Will pay for delivery. Tel. 0553 072309 any time

HAND SCANNER: Wanted for ST with software. Up to £130 paid. Please ring Richard (0889) 502547

PHOTOCOPIES: 1029 printer utilities from Issue 25 of PAGE 6 wanted. Will pay 50p for photocopy, £1.50 for the utilities on tape (either must come with instructions) or £1.25 for the whole magazine. Phone (0274) 612282 and ask for Denham (after 6 pm)

TOUCH TABLET: Wanted with Atari Artist ROM and manuals, Smash Hits 3 and Pitfall II (disk). Gary Snook, Southampton 0703 787895

ADVENTURES: All adventures for XL/XE, especially Infocom/Level 9, boxed and complete if possible. Any reasonable price paid. Also any hint sheets for all XL adventures wanted. I will pay for postage. Simon Wells, 15 Monmouth Close, Mitcham. Surrey, CR4 1XS

HITCH HIKERS: Wanted for XL. Will pay £10. Also clue book for Infocom's Suspect. Will pay £5. Clive. 0903 755462 evenings, weekends

STOS LISTINGS: Can anyone send me some STOS listings preferably on disk or photocopies. Willing to pay reasonable price or will send blank disk. If you can help please contact Desmond Townson at Peacehaven, Love Lane, Bickington, Newton Abbot, South Devon TQ12 6JT or telephone 0626 821387

130XE: Wanted. must be cheap as I am unemployed. Also Paperclip, Printshop, 10 Print. Phone Paul 0533 356587

1027 PRINTER: 1027 letter quality printer, must be in good working order and cheap. David Turner, 11 Grundisburgh Road, Woodbridge, Suffolk, IP12 4HJ. Tel. 0394 383280

FS2 SCENERY DISKS: Disk 8 to 12 for FS2. Tel. Norman 0386 831881 *(I don't think they were ever issued for the XL, Norm. Ed.)*

ALTERNATE REALITY: The Dungeon , must be in excellent condition with full instructions. Original packaging would be appreciated. Also HELP please with A.R. The City, any tips, clues or, perhaps, a map. Contact Mark Parsons, Kella House, Sulby, Isle of Man. Tel. (0624) 897905

ISSUE 25: Copy of the 3 utilities including a screen dump for the 1029 printer from Issue 25. Also copy of Graph Maker from Issue 32. S. Young, 94 Mangravet Avenue, Maidstone, Kent, ME15 9BE

DISK DRIVE: Faulty or working disk drive wanted. Any condition. Write to Roy Stewart, 23, Strode Road, Wolverhampton, WV2 3ES

PRINTSHOP: Good price paid, desperate need. Contact John on 0303 57245

PENPALS/ CONTACT

GREETINGS SLAVES: Newcomer to Atari 8-bit seeking information on mods, interfacing, also Ham Radio software. Contact Fred Thomasson, 26 Rona Walk, Longsight, Manchester, M12 4PW. Phone 061 274 4051

PENPALS: One Atari expert seeks contact to swap technical advice, tips and programming ideas. Everyone from novice to advanced is invited to write and expand the world of Atari. All letters answered (in time). Write to Phil Cardwell, 36 Hesketh Avenue, Blackpool, FY2 9JX

ULTIMON: Fully working Ultimon with Tripler board or Omnimon with Ramrod. Phone Mike on 0302 834410

XL/XE PENPALS: I have a 65XE, 1050 drive with US Doubler, XC12 tape deck and a Citizen 120D printer. I would like to hear from anyone interested in swapping games, hints etc. Write to John Cooper, 201, Langer Lane, Chesterfield, Derbyshire, S40 2JW

ST PENPALS: I have a 1050STFM with external 5.25 drive, lots of PD software. Write to Van Dijk Ricky, De Berlaimontstraat 10, 2100 Deurne, Belgium

XL/XE PENPALS: I have a 800XL and XC12 cassette. I would like to hear from someone in the Suffolk area who would be interested in swapping tapes, ideas etc. Write to James Andrews, 20 Oak Hill, Hollesley, Woodbridge, Suffolk, IP12 3JY

PENPALS/HELP: Designer needs help. I need mucho macros. Are there any MACRO utilisers that can send me information on macros and/or some simple and not so simple macros for MAC/65 and/or macro assembler? Please help. Also wanted, Richmans 80 col. w/p. And/or if you are a nice person then be my penpal. Glenn L. Miller, 57 Parkes Lane, Terranora, NSW 2486, Australia

PENPAL: My name is Emil. I have a 130XE and XC12. I have a few games (10), mostly on cassette and I would like more cassette games. I live in Holland and there is almost no programs to get. Are you interested? Write to Emil Menning, Jinneveldstraat 1, 6942 HH Nieuw-Dijk (Didum), Holland

CONTACT is FREE of charge and may be used by any genuine Atari enthusiast for contacting other owners. Any notice may be included except those offering software only for sale or exchange or those offering items for sale commercially. The Editor reserves the right to omit any notice received at his discretion.
Send your CONTACT notice to CONTACT, PAGE 6, P.O. Box 54, Stafford, ST16 1DR. Please write your notice on a separate sheet of paper, not as part of a letter.

FOR SALE ... WANTED ... PEN PALS ... ADVICE ... HELP ...

THE ACCESSORY SHOP
ISSUE 50

SERIOUS SOFTWARE

This issue we have continued the more software and also introduce some games software at very special prices detailed on the inside front cover and in the following pages. Some items are now sold out but there are still a selection of word processors for you to choose, from the most simple to the most complex - the choice is yours. Also there is one comms packages left and lots of educational titles. As always we are able to offer these items at considerably less than the recommended price so check through these pages.



DISK ONLY

BASIC COMPILER

Compile your Basic programs into 6502 machine code! Unlike other compilers which require a separate run-time program the Datasoft Basic Compiler creates stand alone programs in machine code with the added benefit of also creating assembler files that can be used with other Assembler programs. Could be an ideal way to learn Assembler, just write a routine in Basic, compile it and study the same routine in Assembler!

Original Price £29.95

OUR PRICE £4.95

LETTER WIZARD

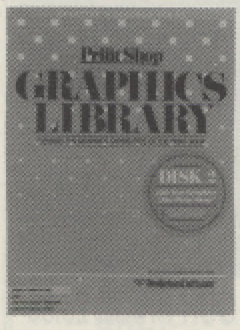
For those who need a little more sophistication in a word processor, Letter Wizard gives you all of the basic features you would expect plus mail merge, print of selected pages, headers and footers, automatic page numbering and a whole host more print formatting styles. Although set up for Epson compatible printers or the NEC 8023, control codes can be sent direct to the printer. Comes with an easy to learn and use manual plus a handy Quick Reference card.

Original Price £19.95

OUR PRICE £8.95



DISK ONLY



DISK ONLY

PRINT SHOP GRAPHICS

The official PRINT SHOP Graphics Library comprises three separate disks each with 120 graphics and a printed out reference guide of the new icons. Disk 1 covers Holidays, Special Occasions, Sports and more, Disk 2 includes Jobs, People, Places, Hobbies and lots more whilst Disk 3 covers Business, Symbols, Mythology and others. These are all top quality graphics in the original Broderbund Print Shop packaging.

Original Price £12.99 each

OUR PRICE £4.95 each

SPECIAL - BUY ALL THREE FOR JUST £11.95!

LETTER WIZARD
WITH SPELL WIZARD

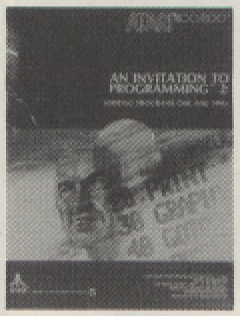
All the features of Letter Wizard outlined above but complete with a 33,000 word dictionary and the ability to create your own special dictionaries by adding unrecognised words. Now your word processing can take on a new dimension. Only limited quantities are available with Spell Wizard so please indicate if you will accept Letter Wizard only in the event of this being sold out (difference in price will be refunded).

Original Price £29.95

OUR PRICE £9.95



DISK ONLY



CASSETTES

INVITATION TO PROGRAMMING
THREE PACKAGE OFFER!

Cassette users wishing to learn Basic programming have never had it so easy! Alongside the fine programming books we have available, we are now able to offer the full three part Invitation To Programming series comprising FIVE cassettes and two workbooks. The series covers Fundamentals, Writing Your Own Programs and an Introduction to Sound and Graphics. With these actual, on-screen, examples your programming books will come alive and you will be writing your own programs in no time. Start to program now at our bargain price!

Original Price £32.97

OUR PRICE £5.00

TEXT WIZARD

If you don't need a very powerful word processor but still want to use your Atari to help with producing written documents Text Wizard could be the answer. A simple to use and easy to learn word processor that has the basic features such as search and replace, move and duplicate text and straightforward print formatting including double column print out. The print commands are set for Epson compatible printers. Text Wizard will get you printing without getting you confused.

Original Price £29.95

OUR PRICE £7.95



DISK ONLY



ROM CARTRIDGE

TELELINK

The simplest to use comms package ever available, just plug it in and go! Telelink is a basic, no frills, communications program that will have you up and running in no time. Ideal for simple access of your local Bulletin Board or for access to the major International Information Services. Optional dump of buffer to a printer. The most basic of facilities but the simplest and quickest to use comms program available.

Original Price £14.95

OUR PRICE £4.00

TELETALK

An excellent telecommunications package that has not been available for some time. This was one of the first full-featured comms packages and, in fact, saw sterling service with PAGE 6 in sending all of the typesetting for early issues over a modem to the typesetters. We can certainly vouch that this works well! All the features you could want from a comms package plus a few you might not have thought of.

Original Price £14.95

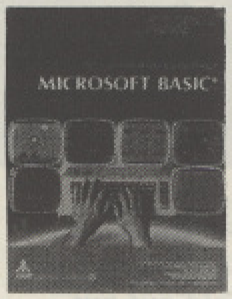
SOLD OUT



DISK ONLY

NEW!

MICROSOFT BASIC



Microsoft Basic II is now sold out but you can still practice programming in the standard Basic if you have a disk drive. Microsoft Basic is ideal is you want to convert programs from other machines as it contains many of the commands that are missing from Atari Basic. You'll be able to share the creation of programs with other computer owning friends and maybe type in and adapt listings written on other computers.

Recommended price £9.95

OUR PRICE £5.95

DISK ONLY

CONVERSATIONAL ITALIAN/SPANISH

NEW!



Isn't it about time you went on holiday and really got to know the people by talking their language? Your Atari can help with these unique language cassettes that combine the Longman spoken word tutorial with interactive computer graphics. Unlike other computers the Atari has a genuine sound channel so you'll actually hear the words spoken to get you to learn quickly and properly.

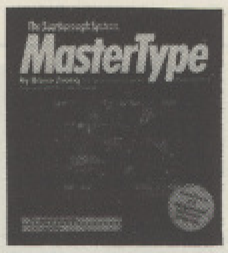
Recommended price £29.95 each

OUR PRICE £4.95 each

CASSETTE ONLY

NEW!

MASTERTYPE



Now anyone can learn to type whilst playing a challenging game. Mastertype was one of the original 'game based' typing tutors which requires you to zap enemy words as they approach from the four corners of the screen. But it not really a game for, before you realise it, you will become quite proficient on the keyboard as you progress through 18 lessons of increasing complexity.

Recommended price £14.95

OUR PRICE £2.95

ROM CARTRIDGE

SCREEN DUMP 1020

NEW!

Owners of the 1020 printer/plotter will be delighted with this utility which has been unavailable for a long time. Now AtariArtist pictures can be dumped to your 1020 in FULL COLOUR. Just boot up the tape, select your favourite picture and let the software do the rest.

CASSETTE ONLY

Originally £14.95

OUR PRICE JUST £2.95

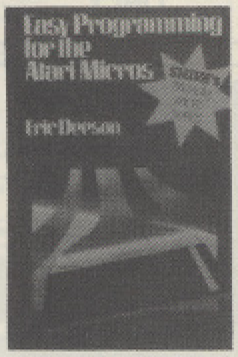
BARGAIN BOOKS

Books for the Atari 8-bit computers are now becoming very difficult to obtain with almost all the Compute! titles now out of print so we are very pleased to have been able to secure a supply of some of the early British books covering the XL/XE range. Don't be put off by the low prices, we are only passing along the enormous savings we have been able to obtain. All these books are brand new and most are shrink wrapped so you will find them of top quality. If you are interested in programming with your Atari almost all of these books will help in some way and at these prices you can afford to experiment!

Please note that because of the high cost of posting books orders will only be accepted if the £1.00 postage charge shown on our order form is included

EASY PROGRAMMING FOR YOUR ATARI MICRO

This book went out of print 3 years ago and we have been searching for a replacement ever since. We are absolutely delighted to have found more stocks of one of the best beginner's books ever published. Over the past couple of years whenever someone has phoned for a beginners book on programming we have advised then to try and find a second hand copy of this book - now you can buy it once again, brand new! By the end of this book you'll be writing your own programs, including those with full graphics and sound.



OUR PRICE £5.95

THE 130XE HANDBOOK



A programming book which covers not only the machine mentioned in its title but also the 65XE, 800XL and earlier models. The book will take you from the first steps in programming up to writing good, structured programs. One chapter is devoted to the sound capabilities of the XL/XE with details of the sound chip itself allowing you to create more sounds than is normally possible with Basic. Four chapters cover graphics including Display List programming, Player Missile Graphics and redefining characters. There are extensive appendices covering Basic commands, Error codes, sound and graphics references and much more. An ideal companion for novice and intermediate programmers.

Published price £7.95

OUR PRICE £3.00

ATARI ADVENTURES

An excellent book written by adventure expert Tony Bridges covering adventures in general and showing how you can write your own adventures on the Atari. This book has in fact formed the basis for some of the adventure listings that have been published in PAGE 6. Tony will take you through examples of commercial adventures with lots of background to all different types of adventure and then show you how all these ideas can be put together in your very own adventure. There is a playable adventure listing called The Eye of The Star Warrior to show you just how it all comes together. Everything you need to know to write your first adventure.



Published price £5.95

OUR PRICE £1.50

MICRO ENQUIRER



A large format book that covers the world of micros in general with some specific Atari sections. The book contains a lot of worthwhile background information on home computing and is ideal for those who are recent converts or who want to expand their general knowledge of computers. It covers all sorts of topics including languages, bulletin boards, CAD, Data Processing, Printers, Artificial Intelligence and much more. There are a few Atari specific programs to illustrate various concepts but generally this book will fulfil a need to know more about the world of computing in general. Large format with over 180 pages.

Published price £8.95

OUR PRICE £2.00

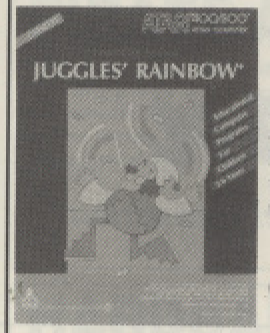
WRITING STRATEGY GAMES

If you are fed up with simple arcade style games but are not sure of the maths required in writing 'thinking' games like chess here is a book that will help you out. To write games of strategy requires not only a knowledge of programming but also of certain mathematical and coding techniques. This book is pitched at an intermediate level, assuming that you already know some Atari Basic. Machine code programmers are also catered for with many hints on how to modify the routines. The book covers the programming theory behind intelligent games before moving on to practical examples of setting up a chess board, moving pieces and playing through. There are sample games for draughts, chess and other strategy games.



Published price £5.95

OUR PRICE £1.50



JUGGLES RAINBOW

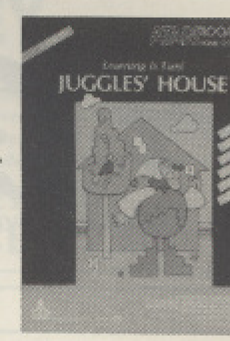
A first computer learning experience for children aged 3 to 6 that teaches the concepts of above, below, left and right plus letter recognition allowing the child to enjoy learning with colours and music and games they can create and play themselves.

OUR PRICE £5.95

DISK OR CASSETTE

NOW ALSO ON DISK!

JUGGLES HOUSE



Another for 3 to 6 year olds teaching the concepts of inside, outside, upper and lower with Juggles' House and Toyshelf. each game also includes a 'playground' where children can try out these new ideas for themselves.

OUR PRICE £5.95

SPECIAL OFFER - PURCHASE BOTH JUGGLES PROGRAMS FOR JUST £9.95

CASSETTE ONLY



PAINT

LAST FEW!

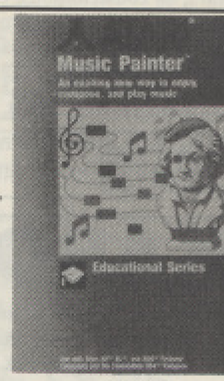
An excellent painting program that was recommended for children as well as adults when released. Very easy to use with all the features you might need from an art package together with a very good manual that goes on to explain the relationship between art and computers. Excellent for children and of equal value for adults. Be creative!

DISK ONLY

Original Price £16.95

OUR PRICE £5.95

MUSIC PAINTER



An exciting educational program that helps to teach music by using colours instead of notes. Change the fifteen supplied songs to feature different instruments, make the notes longer or shorter or transcribe your own songs. No musical knowledge required to make your own great music. Children or adults alike will get great satisfaction from being able to create their very own music.

OUR PRICE £7.95

DISK ONLY



CAVERNS OF MARS

Winner of one of the first Atari programming competitions, this was one of the first vertical scrollers and remains a much sought after original game. Descend through the caverns avoiding mines and picking up fuel. Highly playable and addictive, only one or two have made it to the bottom of the cavern to discover the secret that awaits them.

LAST FEW WITHOUT BOX BUT WITH FULL ORIGINAL MANUAL - LOWER PRICE

DISK ONLY

OUR PRICE £4.95

TOUCH TYPING

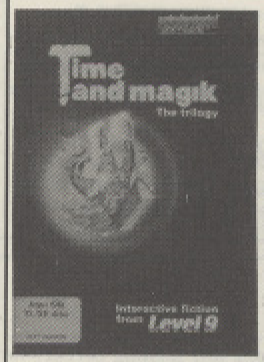


Everyone who uses a computer needs to brush up on their typing and now you can learn to type like a professional typist with this complete tutorial. Touch Typing presents a self paced method of learning by letting you practice typing letters, sentences and paragraphs. The computer determines words per minute, number of errors and your weak points. Random sentences are generated to drill you in those areas. Contains two cassettes and instruction manual.

Previously £19.95.

OUR PRICE £4.95

CASSETTE ONLY



TIME and MAGIK

Three of Level 9's famous adventures in one package. This includes LORDS OF TIME, RED MOON and THE PRICE OF MAGIK to give you many hours of puzzle solving and exploration of the unique worlds created by Level 9. All these games have received top reviews. Now you can try them at a very special price

DISK ONLY

Originally £11.95

OUR PRICE £5.95

TYPO ATTACK

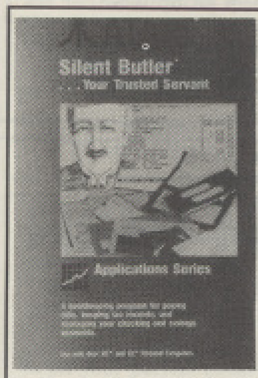


A typing trainer based on the Space Invaders concept in which you hone up your typing skills by blasting falling letters. An enjoyable way to learn that will quickly enable you to recognise the keys without having to look at the keyboard.

Normally £12.95

OUR PRICE £6.95

ROM CARTRIDGE



SILENT BUTLER

The all round personal finance planner that keeps track of three bank accounts, maintains income records, reminds you of birthdays, anniversaries and important dates and generally keeps you up to date on your financial status.

DISK ONLY

OUR PRICE £6.95

HOME FILING MANAGER/PAY OFF

DISK ONLY

The Home Filing Manager record keeping system that simulates index cards on your Atari, keeps track of almost anything together with The Pay-Off Adventure - your chance to sample an adventure in classic style. This two disk set also includes some top class graphics demos.

SPECIAL PRICE - ONLY £1
WHEN PURCHASING ANY OTHER ITEM
AVAILABLE ONLY WITH THE PURCHASE OF OTHER SOFTWARE

A Further Selection

More software for your added enjoyment ranging from adventures to arcade games and serious software. Check out Visicalc - we only have a few copies left!

PLANETARIUM

BACK IN STOCK!

Fun or education? Both really in this fascinating look at the heavens. Over 1200 stars, 88 constellations, the solar system and more than 300 deep-sky objects are depicted in this program that allows you to view the universe. You can make stellar and planetary maps, study eclipses, learn about latitude and longitude and much more.

1050 DRIVE ONLY
Please state when ordering if you have a US Doubler fitted

Normally £16.95
OUR PRICE £ 6.95

TAIL OF BETA LYRAE

NEW PRICE

Our A-Z of Atari Software series says "The ultimate 'Scramble' clone with superb graphics and music. This humdinger of a horizontally scrolling shoot 'em up was written by Philip Price, and the music was by Gary Gilbertson. They later went on to write the 'Alternate Reality' games." This is one of the few original 'classics' right up there with the top arcade games of all time. Give your eyes, ears and reactions an unforgettable treat!

DISK OR CASSETTE

Original Price £7.95
OUR PRICE £1.99

KABOOM

NEW!

Challenge the Mad Bomber as he tries to bomb you out of sight. Can you catch his bombs and dowse them in time? Or would you like to be the Mad Bomber and try to flatten one of your friends? Lots of excitement for one or two players in this addictive arcade game that won awards for Best Audio and Visual Effects when it was first released. Simple yet addictive.

ROM CARTRIDGE

OUR PRICE £2.95

RIVER RAID

NEW!

This best-selling, all out battle adventure from Activision will have your palms sweating as you fly up river bombing enemy bridges, avoiding lethal choppers and hot air balloons. Can you survive far enough up river to discover its secret? Few can. Now this 1 or 2 player game can be yours at the lowest ever price. Bombs away!

ROM CARTRIDGE

Recommended price £12.95
OUR PRICE £3.95

ATARI SMASH HITS 7

NEW!

This is incredible! FOUR of the best games for the Atari in one pack at the amazingly low price of just £2.99. Are these sub quality games? No sir! Not with Colossus Chess 3.0, Electraglide, Blue Max and Alley Cat as the selection, any one of which would be a bargain at £2.99 but you get all four! You had better hurry!

DISK ONLY

Recommended price £14.95
SPECIAL PRICE £2.99

ZAXXON

NEW!

One of the all time classics for the Atari, Zaxxon set new standards when first issued and was copied many times. Pilot your craft across the unique 3 dimensional battlefield shooting enemy fuel tanks, anti-aircraft tanks and missiles before launching off through space for the ultimate conflict with a mighty robot - few have got this far! Zaxxon, often copied, never bettered and NEVER at this incredibly low price!

DISK OR CASSETTE

RRP £7.95 cass/£9.95 disk
OUR PRICE £2.99

THE COUNT

LAST FEW!

When's the last time you awoke in an antique brass bed in a dank, desolate castle? If your answer is "never" you've come to the right place! This marvellous Gothic Adventure will escort you into the weirdling world of a certain well-knownTransylvanian count. Scott Adams Graphic Adventure #5 is a Moderate level adventure ideal for those who have had a little experience.

DISK ONLY

Original price £19.95
OUR PRICE £7.95

TIMEWISE

REDUCED PRICE

Why not use your Atari as an electronic diary? Timewise allows you to keep track of all your appointments and important dates on a daily, monthly or yearly basis. Now you can dispense with your diary and let your Atari do the work. If you have a printer Timewise allows you to print out the information in a variety of ways.

DISK ONLY

Originally £22.99
OUR PRICE £3.95

VISICALC

LAST FEW!

The world famous Visicalc spreadsheet available for your Atari. Visicalc will take care of all of your spreadsheet requirements with all the arithmetical functions you could want on a spreadsheet that is 63 columns wide by 254 rows deep. All major spreadsheet functions are supported and the program even allows split viewing windows. Priced at £159.95 when first released!

DISK ONLY

OUR PRICE £11.95

PROOFREADER

Users of Atariwriter will be delighted with this, the long lost spelling checker for the Atariwriter cartridge! Proofreader may be loaded alongside Atariwriter to give you instant access to a dictionary of 36,000 words. If that is not enough you can add your own words as you go. Errors are highlighted on screen for correction, unusual words can be saved and you can look up spellings.

DISK ONLY

OUR PRICE £5.95

MACRO ASSEMBLER

The Macro Assembler will allow you to create your own machine language games and applications five times faster than with the Assembler Editor cartridge and it can assemble as many as 1600 symbol definitions with no limit on program size. You can duplicate code, optionally assemble code and modularise your program. A Program-Text Editor is included.

DISK ONLY

Normally £19.95
OUR PRICE £7.95

BASIC CARTRIDGE

Why would you want a Basic Cartridge when Basic is already built in to your machine? Well some programs, especially some early public domain programs won't run on the XL/XE but they will if you plug in the old version of Basic. Much more convenient than having to boot in the old Basic from disk and, at this price, worth having just as a backup.

ROM CARTRIDGE

OUR PRICE £3.95

PIRATE ADVENTURE

"Yo ho ho and a bottle of rum ...". You'll meet up with the pirate and his daffy bird along with many strange sights as you attempt to go from your London flat to Treasure Island. Can you recover Long John Silver's lost treasures? Happy sailing matey. Scott Adams Graphic Adventure #2 brings you a superb Beginner's level adventure complete with graphics and ideal for all ages

DISK ONLY

Original price £19.95

OUR PRICE £7.95

STRANGE ODYSSEY

At the galaxy's rim, there are rewards aplenty to be harvested from a long-dead alien civilization. Fabulous treasures ... advanced technologies far beyond human ken ... All this and more awaits the brave galactic Adventurer. But will you be able to recover the wealth and return home? Prepare yourself for a Strange Odyssey! Scott Adams Graphic Adventure #6 is a Moderate level adventure.

DISK ONLY

Original price £19.95

OUR PRICE £7.95

HARDBALL

American League baseball at it's very best. A highly regarded game - check out the review in Issue 45 'THE best sports simulation on the Atari'. Look over the pitchers shoulder as he throws the ball to the waiting trio of batter, catcher and umpire. In HardBall you can hit, run, steal, blunt and dive, change the fielders and do everything you can do in the real game. For one or two players.

ROM CARTRIDGE

Normally £14.95

OUR PRICE £7.95

GALAXIAN

Another arcade conversion that retains all of the addictiveness of the original and still stands as one of the all time classics. Blast the galaxians as they advance in formation and peel off to attack. With one or two players and 10 skill levels you'll be entertained for a long time. Includes an easy option for beginners.

ROM CARTRIDGE

Normally £12.95

OUR PRICE £6.95

STAR RAIDERS II

Disk version of this follow up to the greatest computer game. Your mission is to pilot the hottest fighter in the galaxy - the Liberty Star - to destroy the entire Zylon Master Force. Your weapons are: Pulse Lasers, Ion Cannons and Surface Star Bursts. Warp between two systems, protecting friendly bases whilst dropping Star Bursts on the enemy. More great action in Star Raiders fashion.

DISK

Normally £14.95

OUR PRICE £5.95

U.S. FOOTBALL

LAST FEW!

American Football is now a big craze in this country and you can now play at home. Outsmart the defence, pass with amazing accuracy, run with speed and agility, make tackles, select offensive and defensive plays and more. You can take on the computer in a practice game or challenge a friend to a dramatic video bowl game of your own in a packed stadium. All the thrills of the gridiron.

ROM CARTRIDGE

Normally £12.95

OUR PRICE £6.95

JOUST

Don your helmet and hoist your lance and climb aboard an ostrich in this unusual arcade game! Do battle with the evil Buzzard Riders in deep space. Pterodactyls to the right of you, alien eggs to the left, you must learn to fly so that you won't die so very far from home. All the arcade thrills for one or two players.

ROM CARTRIDGE

Normally £12.95

OUR PRICE £6.95

RESCUE ON FRACTALUS

Ask old hands what was one of the best games ever for the Atari and a good proportion of them will say Rescue on Fractalus. This game from Lucasfilm set new standards in computer games combining a space flight simulator with a rescue mission. Super, ever changing, 3-D scenery as you fly through the mountains to land on the planet and rescue stranded pilots.

ROM CARTRIDGE

Normally £14.95

OUR PRICE £6.95

BALLBLAZER

Another from Lucasfilm, this top quality split screen game takes place in a games arena of the future. You are strapped into a Rotofoil hovercraft-like vehicle that skims over the surface of the playfield at 50 metres per second. The object is simple, just release your Plasmorb through your opponent's goal. Two-player simultaneous play with first person perspective for both players.

ROM CARTRIDGE

Normally £14.95

OUR PRICE £6.95

SUPER BREAKOUT

Breakout was the original simple yet totally addictive game and this enhanced version will provide even more addictive fun. Several variations on the basic theme are available for one to four players (up to 8 on the 400/800!). NOTE that this game requires paddle controllers.

ROM CARTRIDGE

Normally £9.95

OUR PRICE £3.95

STAR RAIDERS 2

The original Star Raiders is updated with better graphics and sound. Your job is to clear each sector whilst ensuring that the enemy do not overrun planets in another part of the galaxy. It will take skill in deciding which sector to warp to, can you afford to clear a sector or will you have to leave to defend a planet and return later! A great follow up to an all time classic.

ROM CARTRIDGE

Normally £14.95

OUR PRICE £6.95

LODE RUNNER

Another classic, perhaps the best of all platform games. You are a highly trained Galactic commando deep in enemy territory. Your mission is to infiltrate all 75 of the enemy's subterranean levels to recover every last piece of gold. You are equipped with a laser drill pistol but you'll need cunning, speed and agility. Lode Runner includes a unique extra that allows you to create your own levels.

ROM CARTRIDGE

Normally £14.95

OUR PRICE £7.95

TENNIS

Great sports fun either against the computer or another player, singles or doubles. Forehands and backhands, driving approach shots, angled volleys, overhead smashes and tricky lobs - they are all here. You control your position on the court and where you want to hit the ball. The electronic scoreboard dis plays the results. All the action without the sweat!

ROM CARTRIDGE

Normally £12.95

OUR PRICE £6.95

ONE ON ONE

Play basketball with two of America's top players in this great sports simulation which features realistic offensive and defensive moves, fatigue factors, hot streaks, a shot clock, even instant repay and a shattering backboard! Like the game of basketball itself, One-on-One rewards you for playing with your head as well as your hands.

ROM CARTRIDGE

Normally £14.95

OUR PRICE £6.95

FIGHT NIGHT

BACK IN STOCK!

Fight Night brings you all the thrills of the boxing ring as you face five of the most brutal fighters ever. Its five separate battles are total war with relentless action. The Boxing Construction Set allows you and your opponent to create your own perfect boxers, selecting stamina, intellect and style. Step into the ring to pit your perfect boxer against the computer or another opponent. 1/2 players.

ROM CARTRIDGE

Normally £14.95

OUR PRICE £7.95

DESERT FALCON

A version of the classic Blue Max that finds you flying across the desert Indiana Jones style searching for hieroglyphics hidden in the desert sands. You need to survive long enough to destroy the howling Sphinx. The longer you survive and the further you proceed, the more perilous your mission becomes. If you destroy the Sphinx you get to gain the bonus round for even higher points. Four levels.

ROM CARTRIDGE

Normally £14.95

OUR PRICE £7.95

ORDER FORM

ALL ITEMS FOR XL/XE

SERIOUS SOFTWARE

Qty.	Title	Price	Total
	BASIC CARTRIDGE	£ 3.95	
	BASIC COMPILER	£ 4.95	
	CONVERSATIONAL ITALIAN	£ 4.95	
	CONVERSATIONAL SPANISH	£ 4.95	
	HOME FILING MAN. / PAY OFF	£ 1.00	
	INV TO PROGRAMMING	£ 5.00	
	JUGGLES HOUSE	£ 5.95	
	JUGGLES RAINBOW	£ 5.95	
	JUGGLES RAINBOW/HOUSE	£ 9.95	
	JUGGLES RAINBOW - DISK	£ 5.95	
	LETTER WIZARD	£ 8.95	
	LETTER WIZ/SPELL WIZ	£ 9.95	
	MACRO ASSEMBLER	£ 7.95	
	MASTERTYPE	£ 2.95	
	MICROSOFT BASIC	£ 5.95	
	MUSIC PAINTER	£ 7.95	
	PLANETARIUM	£ 6.95	
	PRINT SHOP GRAPHICS 1	£ 4.95	
	PRINT SHOP GRAPHICS 2	£ 4.95	
	PRINT SHOP GRAPHICS 3	£ 4.95	
	PRINT SHOP (ALL THREE)	£11.95	
	PROOFREADER	£ 5.95	
	SCREEN DUMP 1020	£ 2.95	
	SILENT BUTLER	£ 6.95	
	TELELINK	£ 4.00	
	TEXT WIZARD	£ 7.95	
	TIMEWISE	£ 3.95	
	TOUCH TYPING	£ 4.95	
	TYPO ATTACK	£ 6.95	
	Total		

GAMES SOFTWARE

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	ATARI SMASH HITS 7	£ 2.99	
	BALLBLAZER	£ 6.95	
	CAVERNS OF MARS	£ 6.95	
	DESERT FALCON	£ 7.95	
	GALAXIAN	£ 6.95	
	HARDBALL	£ 7.95	
	FIGHT NIGHT	£ 7.95	
	JOUST	£ 6.95	
	KABOOM	£ 2.95	
	LODE RUNNER	£ 7.95	
	MAXWELLS DEMON	£ 1.99	
	MR ROBOT - CASS	£ 1.99	
	MR ROBOT - DISK	£ 1.99	
	ONE ON ONE	£ 6.95	
	PIRATE ADVENTURE	£ 7.95	
	RIVER RAID	£ 3.95	
	RESCUE ON FRACTULAS	£ 6.95	
	STAR RAIDERS 2	£ 6.95	
	STAR RAIDERS II (DISK)	£ 5.95	
	STRANGE ODYSSEY	£ 7.95	
	SUPER BREAKOUT	£ 3.95	
	TAIL BETA LYRAE - CASS	£ 1.99	
	TAIL BETA LYRAE - DISK	£ 1.99	
	TENNIS	£ 6.95	
	THE COUNT	£ 7.95	
	TIME and MAGIK	£ 5.95	
	ZAXXON - CASS	£ 2.99	
	ZAXXON - DISK	£ 2.99	
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BOOKS

Qty.	Title	Price	Total
	EASY PROGRAMMING	£5.95	
	THE 130XE HANDBOOK	£3.00	
	MICRO ENQUIRER	£2.00	
	ATARI ADVENTURES	£1.50	
	WRITING STRATEGY GAMES	£1.50	
	TOTAL		

LAST FEW

Qty.	Title	Price	Total
	PAINT	£ 5.95	
	U.S. FOOTBALL	£ 6.95	
	VISICALC	£11.95	
	Total		

PUBLIC DOMAIN ETC.

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	ISSUE 50 DISK	£ 2.95	
	8-BIT REFERENCE GUIDE	£ 6.95	
	TURBO BASIC	£ 3.95	
	Total		

PAGE 6 SOFTWARE

All on disk unless shown

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	TARITALK	£19.95	
	MINI OFFICE II	£14.95	
	SPELL ME - Disk	£ 6.95	
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Post and Packing on above	£ 1.00
Public Domain	£
PAGE 6 Software	£
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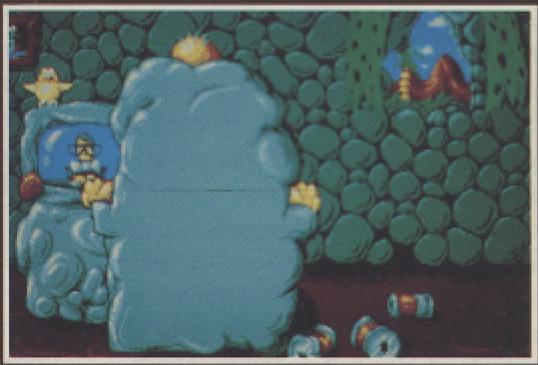
ST FILE

Lots of people thought that CADAVER was one of the best games of last year so in true computer world tradition you can now play it all over again with extra levels entitled THE PAY OFF which contains another four levels and 200 rooms. Will CHUCK ROCK be the next arcade sensation? Judge for yourself by the pictures alongside and the review elsewhere, sure looks good - move over Psygnosis? One of the most innovative 8-bit games has now made its way to the ST in the form of ST ENCOUNTER from Paul Woakes and Novagen. The original of this Battlezone-like game was a sensation back in 1984 but will it fare as well in the more graphics dominated ST world? What do you call 'budget' price? Some software companies say that £9.99 is budget in the ST world others go lower than that but Prism Leisure hope to shake all the squirrels out of the hen coup with a new budget range that retails at just £2.99. Don't expect anything too exciting just yet though as the initial titles are FOOTBALL MANAGER, KARTING GRAND PRIX and THAI BOXING many of which are still lying around on some dealers shelves at full price! Still, if it takes off at this price, no doubt we'll see many of today's ST classics in your local newsagent alongside the Speccie games by the end of the year. Are you fed up with Turtles? Fed up with everyone exploiting the concept? Well now, from Mindscape, comes CAPTAIN PLANET AND THE PLANETEERS which certainly does not exploit the Turtles, or does it? 'Our children can inherit a legacy of wastlefulness and pollution .. or follow CAPTAIN PLANET in his fight to cleanse our fast deteriorating world. Coming soon, the first ever environmentally conscious and thought provoking software challenge from Mindscape'. Somehow you get the feeling that between 'environmentally conscious' and 'thought provoking' they have missed out 'money making'!

ST adventurers can look forward to a meagre handful of games while IBM owning friends can lock themselves away forever in the coming months when US GOLD and SSI get round to their coming releases. ST owners will get GAUNTLET III - THE FINAL QUEST, a battle in eight lands to be freed against the forces of evil and CURSE OF THE AZURE BONDS (already out). What you won't get is EYE OF THE BEHOLDER, SECRET OF THE SILVER BLADES, POOL OF RADIANCE, CHAMPIONS OF KRYNN, DRAGONSTRIKE and many more. You see, the ST is sort of dead in the States. Still you could try CRUISE FOR A CORPSE, not exactly fantasy but very much Murder on the Orient Express, except this one happens on the Sealink crossing between Dover and Calais (well, its a bit more exotic than that, but you get the idea).

Let's get serious for a moment. How do you fancy an intelligent joystick/mouse adapter? Josty UK have developed ROBOSHIFT which allows a mouse and joystick to be plugged into the same port on your ST. Just press the left button on the mouse or the fire button on the joystick and the device immediately switches to the appropriate control. Neat eh! No price given but pop along to your nearest dealer who is supposed to be stocked up by now. FRONTIER SOFTWARE seem to need new batteries in their calculators for when adding the increased VAT to their XTRA RAM products they have actually got the prices lower! If you haven't upgraded by now, you should think about it. If you want to supply your own chips, the the XTRA RAM board can now be had for £54.99, an extra half meg will cost you £69.99 and a full 2Mb extra is now £159.99 a saving of £30 on the previous price. If you order direct and can catch them out Frontier will knock a further 25% off the price! In response to long delays experienced from some mail order suppliers Frontier will now guarantee to despatch your order within 48 hours or else give you back 25% of the price. Now if anyone wants to slip us a few bob, we'll let you know when they are closing down for their annual holidays!

SCENES FROM CHUCK ROCK



Chuck is relaxing with a few beers



... while Gary Gritter makes off with his Missus



Chuck hunts for her in the grassy plain



... and on through the frozen wastes

John's Jottings

The Problems of Reviewing ... Tales of Adventure ... Words of Wisdom ...

***Have you ever thought** about the difficulties faced by the Reviewer? You go into the newsagent and pick your favourite magazine (this one hopefully!) off the shelf and expect to find lots of useful information about the latest and greatest games (or whatever type of software turns you on!). How often are you disappointed? How many times have you read a review and then looked at it carefully and thought "What have I actually learned about that game?", or how many times have you rushed out to buy a piece of software based on a superb review only to find that it won't load on your machine, or that even if it does, then after the first euphoric hour of play the game is so boring, bug-ridden, badly documented, difficult, incomprehensible (French?) or whatever that you give up in disgust?*

There are two main problems. One is that most software is boring, bug-ridden, badly documented, incomprehensible, etc. The other is that most reviewers do not play the game for long enough to realise that fact! Quite often a review copy of a game will be accompanied by a publicity handout prepared by the (obviously biased) software distributor. It is amazing how many of the reviews in the top publications are based almost entirely on the publicity handout plus the information on the box cover and in the instructions. If you have seen all that and played the game yourself then you can usually tell exactly how far the reviewer got when he tried playing the game - and it is often less than an hour of playing time!

CONVERSIONS AND BUGS

Some magazines are full of glossy screenshots and boxes saying how incredibly mega-fantastic this new game is - but don't actually tell you how well it plays, or mention that there are bugs that won't prevent you playing the game, but will stop you ever finishing it! I hate to try write a review of a game that I haven't completed as I know so many that are bug-ridden.

A typical example is Captain Blood - rave reviews when it came out a few years ago - but no-one pointed out that the UK ST conversion had three or four errors in the answers that the aliens give you which prevent you getting more than about half way through the game (how to bypass the bugs was documented in issue 36, and they were fixed in later releases).

Conversions are where most of the problems occur. With modern commercial pressures no-one has time to fully test anything other than the original version. I was going to review 'NAM this issue, but it won't load on my STE and it won't save/restore on my ST. Presumably the original Mac or PC version works OK! Domark are sending me another copy! Another one that suffered from conversion was Bombuzal. Level 129 appears to be impossible - I spoke to the programmer who converted it from the 64 and he admitted that he got bored testing it around level 100 and assumed the higher levels would work! Actually most people get stuck much earlier, usually around level 57 - you have to dodge past a bouncing ball and, even if you succeed, always run out of time. The first thing you should realise is that you are wasting your time trying to dodge UNDER the ball - I know it works sometimes - but that is a bug! That is why it is impossible to do it consistently enough to allow you to solve the level! It is possible (I am told!), but for those of you who would like to bypass it, the next password is RING.

The worst conversion ever has to be The President is Missing on the Atari! The programmer who converted it obviously didn't understand the game at all so that there are blatant errors such as input areas which aren't long enough to type in some of the inputs needed to complete the game! There are countless errors in the information which you are given and, having borrowed a PC version to see how it was supposed to work, I listed THREE pages of bugs! The game was withdrawn - but I have seen copies still on sale - don't buy it!

NEVER TRUST A REVIEWER

The reviewer is not always to blame - he is often given far too much to do in far too little time - "Please give me an 800 word in-depth review of this new D&D game by next weekend!". You then find that the average playing time is 200 hours!

A good example is probably B.A.T. - the first hour or two is superb since it has excellent graphics and music. But as you get further into the game you will find the gameplay is not so great and the problems are obscure and tedious. I have seen a number of reviews praising it very highly - obviously the reviewers did not actually try to complete the game!

Another problem is, of course, finding the right reviewer to review a game. Arcade games, text adventures, war simulations, RPGs and so on are very different types of games and appeal to very different types of people. Damon Howarth gave a glowing review of Metal Masters last issue and recommended that you go out and buy it immediately - I found it incredibly boring. Also in the last issue John Davison Jnr found Mystical to be a "superb game of superior quality" - I would have pointed out that it was badly programmed in that the two-player option doesn't appear to work, and that it is not good value for money as my son and I, using an alternative two-player strategy - taking it in turns with the joystick while the second player used the keyboard to maintain the spell inventory, finished the complete game on about the third attempt! (What John fails to take into account is that not everyone can find the Holy Grail! Ed.)

One man's meat is another man's poison! I rejected the opportunity to review both those games as they didn't appeal to me personally - we always try to find the right person to review a

by John Sweeney

game, but it is not always possible. When reading a review you always need to try and work out whether the reviewer is really into this sort of game - if he is then you must not be taken in too much by his praise, if he isn't then you must not be taken in to much by his disparagement - in other words, never believe anything you read in a review!

What do you think? We believe that here at Page 6 Publishing we care a little more and try a little harder than the bigger magazines who churn out glossy reviews with no content - are we succeeding?

THE BOOK OF THE GAME!

And now for something completely different ...

Many thanks to Allan J. Palmer of Basingstoke (or Boringdeath as it is known to those of us who have to work there sometimes!) for bringing my attention to some excellent books based on the Infocom and Ultima games.

Avon have now published six Infocom books:

The Zork Chronicles by George Alec Effinger

- a fairly thin fantasy plot - basically an excuse to visit most of the locations in Zorks I, II and III. Quite amusing, but you'll get most out of it if you have played the games.

Wishbringer by Craig Shaw Gardner

- apparently the incident recounted in the computer game was only one of a series of strange happenings involving postmen in Festeron - this tells of another postman entangled in the eternal battle between good and evil. All the characters from the game are there, and again you will get most out of it if you have played the game.

Planetfall and Stationfall by Arthur Byron Cover -

weird science fiction continuing the adventures from the computer games. Blather is still around to annoy you; Floyd is dead, but young Oliver (from Stationfall) takes over as your robot companion (actually Floyd's ghost is still around and trying desperately to get you to find him!). The plot tends to ramble a bit, and the story continues in Futurefall (not yet published) - I didn't enjoy these as much as some of the others.

Enchanter by Robin W. Bailey

- the best one so far - a good fantasy adventure which stands by itself, but is even more fun if you have played Enchanter/Sorceror. It seems that when you stole the scroll from the Translucent Rooms in Sorceror you woke the Great Terror, and although you managed to keep it trapped while you finished the game, it eventually found its way to freedom and is now poised to destroy the whole world. A young enchanter, aided only by a brogmoid and a dryad (see the Infotator from Sorceror for pictures of them!) are your only allies as you, a young enchanter, set out to defeat the beast. All your favourite spells from Enchanter and Sorceror are there - great fun!

The Lost City of Zork by Robin W. Bailey

- if you read the Encyclopedia Frobizzica in the library in Sorceror then you will know that Duncanthrax (Lord Dimwit Flathead's great-great-grandfather) was the King of Quendor who conquered the lands across the Great Sea which later became the Great Underground Empire. The hero is a young would-be adventurer who sets off to find his fortune in the great city of Borphee, instead gets to be a galley slave on one of Duncanthrax's war galleys, and ends up trying to defeat the whole army of Quendor in order to rescue the Borphee Guild of Wizards. I haven't finished this one yet (deadlines! deadlines!) but so far it is excellent.

And Popular Library have published a book based on the Ultima games:

The Forge of Virtue by Lynn Abbey

- another excellent fantasy adventure which is even more fun if you have played Ultima IV and/or Ultima V. It is set just before the beginning of Ultima V - Lord British has disappeared and the whole world seems to be going wrong. A young adventurer, with a motley band of helpers sets out to rescue the fair Althea's magician brother - fairly standard stuff, but nicely done and well integrated into the Ultima mythos. The geography is all true to the games as you travel the road from Paws to Britain and beyond, and you meet people like Shamino and Dupre - your companions in the computer version. Let's hope there are more in this series.

Unfortunately you are unlikely to find any of these books in your local W.H. Smith. They are all American paperbacks - I got some from Andromeda (021-643-1999), some from Forbidden Planet, New Oxford St., London, and some from a friend in the States.

CHESS SIMULATOR

Another offering from Infogrames, this is an excellent computer chess program - the winner of the British Open PC Chess Championship 1989. Not as pretty as BattleChess, but much better at playing chess, and with lots more features for your £24.99. It claims to be able to play up to 2150 ELO points and has a facility for assessing your ELO grade. It has all the features you would expect in a quality chess game, including lots of ways of controlling how long it spends thinking so that you can get it to play quite a strong game quite quickly.

I did mean to review this some months ago, but I couldn't get it to Save/Restore a game for me - and the Infogrames people couldn't help. I eventually discovered that it is a problem with the documentation - when you restore your saved game it just loads the moves back into memory - it doesn't actually restore the position on the board. To get back to where you were you have to select Automatic to replay the moves. The mouse control is a little awkward - you seem to have to bounce the pointer off the top of the screen to make the menu appear, and it would have been nice to have a single keystroke to allow you to switch between the board and the display of what the computer is thinking; but otherwise this is well worth considering if you want a strong chess program with lots of features for helping beginners as well.

Double-sided disks only, but if you have a friend with a double-sided drive he can copy all the files except CHESS_F.PRG (the French version) to a single-sided disk for you.

COMPILATIONS

WINNERS?

Two of the more successful games houses around at the moment have brought out some of their better games in compilation format. From Domark we have **THE WINNING TEAM** consisting of five well respected games, Escape From The Planet Of The Robot Monsters (hereon referred to as Escape) Klax, APB, Cyberball and Vindicators. From those every nice Psygnosis people comes **MONSTER PACK**, only three games here but very strong contenders. Leading them comes Shadow Of The Beast, backed up by Infestation and Nitro.

These compilations show examples of the same types of games taken from different angles. The Psygnosis trio all show the strong art and sound qualities that the company have been perfecting over the years. The packaging is a gently understated black with muted shades of purple and the games are examples of what I feel to be their best and worst. The most disappointing game is **Infestation** which strikes me as a high-tech version of the old tank games such as Rommel and Desert Fox. The object would appear to be to pick your way through solid state 3D and blow up as many aliens as possible. The graphics and screen handling seem to let down the good Psygnosis name and to me this game really lets down the trio. Possibly I am too hard on this for had any company other than Psygnosis offered this it would have received some extra allowance. Indeed had their aim been to include a Tank Battle style of game then Terrapods would, possibly, have been a better choice.

Nitro is a game I reviewed in full only a couple of issues ago and this game is still as good as then. The graphics still hold the attention and the David Carradine clones for this Death race type game still keep the nerve endings tingling. It is strange to note that the instructions for Nitro fit in a far smaller space than they used to! Nevertheless the smooth scrolling racers and the interest of the tactical choice of cars maintains the games flavour and excitement.

The jewel in this collection's crown has to be the classic **Shadow Of the Beast**, in its time hailed as a classic and certainly not diminished by age. It makes the package worth buying on its own merit. This must be the ultimate arcventure, the development from Psygnosis own little masterpiece Barbarian, this wide ranging platform and text game kept my rapt attention for some considerable time. The pictorial and art work in this work are spell-binding and combined with some excellent gameplay and music, prove that age does not wither strong innovation. Of the three games this has to rank as my favourite and is a good indication of the worth of Psygnosis as a company. All in all this piece save the compilation from being a good also ran.

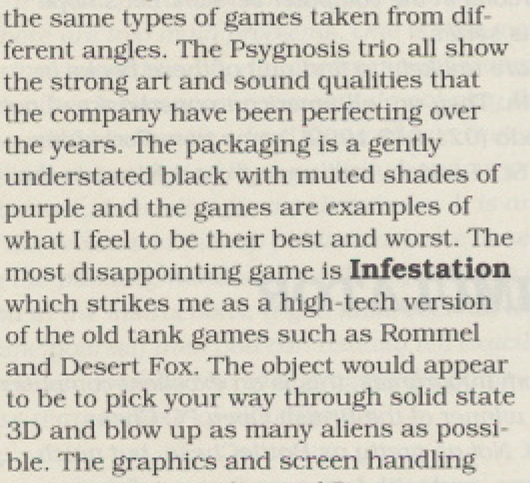
The Domark offering is certainly of stronger pedigree offering only one weak game in the form of **Vindicators**. Again a tank type game it suffers from minimal instructions and less than atmospheric gameplay. Indeed it feels as though this was added as an afterthought to fill the Winning Team's numbers. Sadly I can not see why since the other four games really are quite compulsive. Escape etc. is a wonderful arcventure romp, in the cartoon world of "Weird science Fiction". The sprites are designed in four colour comic style and the ray gun effects, walking radio monsters and slaves in bikinis all give an RKO Flash Gordon feel to the game. If Psygnosis are the Salvador Dali of the computer world then Tengen are obviously the Andy Warhol. I feel that this game is possibly overshadowed in style by Cyberball although as a game play and free for all enjoyment spectacular it is excellent.

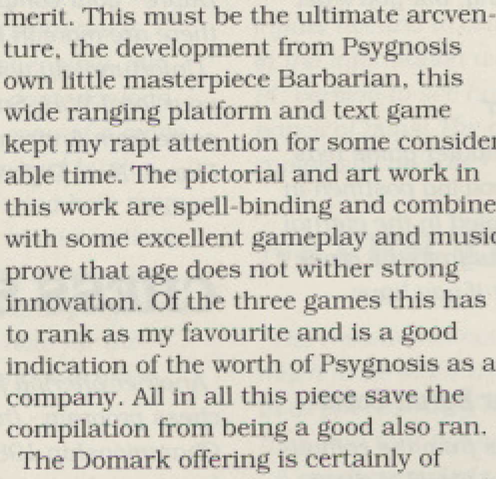
Cyberball is another game I have had the pleasure of reviewing, it marks Tengen's best conversion to date, notwithstanding Skull and Crossbones. Sadly I notice it still has the bug that allows robot players to go out of bounds and be relocated at the other end of the field. This is the Gridiron of the future and if the London Monarchs are any example the training methods of the present. The basic theory is that a team of specialised robots play a variation of American football with a nuclear time bomb. Rather than downs they must achieve deactivations. It is a strong two player game with several pleasing touches. Even the half time marching band are depicted in robotic form. Again good value in a compilation.

APB is another cartoon style game, and again is slightly different. The player needs to work a policeman's week with various arrests and chases. Score too many demerits and you find yourself fired and put in the can, do it right and the boss rewards you with bonuses. This game becomes addictive once the controls are mastered.

The most infuriating and addictive game of the bunch is **Klax**. This a sort of Tetris variant which needs the player to catch differently coloured tiles and place them in slots in varying formations to obtain set point scores in order to advance. As with Tetris the theory is simple the practice devilish.

Overall THE WINNING TEAM is possibly the best compilation I have come across it offers variation for all tastes and is the sort of pack that a new owner could buy to enjoy themselves at a low cost. MONSTER PACK seems less of a bargain, and I feel that Psygnosis could have chosen better options, although Shadow of the Beast saves it from being a waste of money. If I had to buy just one though it would be Tengen/Domark's offering.





THE WINNING TEAM
Domark (Tengen) £29.99

MONSTER PACK
Psygnosis £25.99

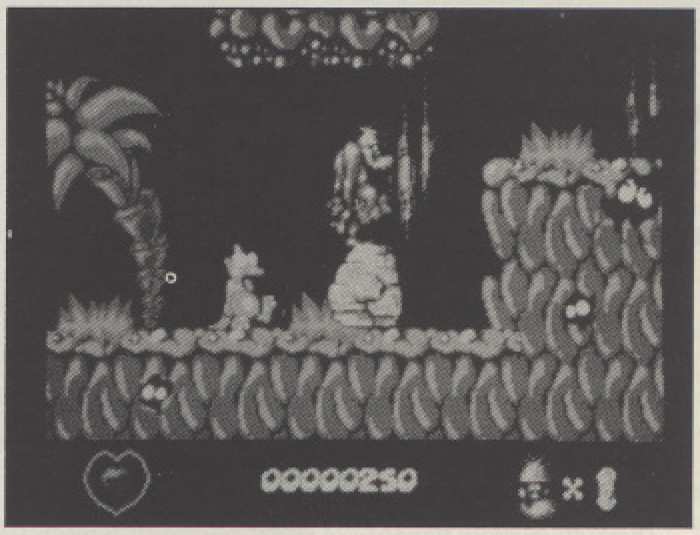
Reviewer Damon Howarth

CHUCK ROCK

Another five levels of eight-way-scrolling, joystick-driven, beat-em-up, platform arcade game! What makes this one so special that you should go out and spend your hard-earned pennies on it?

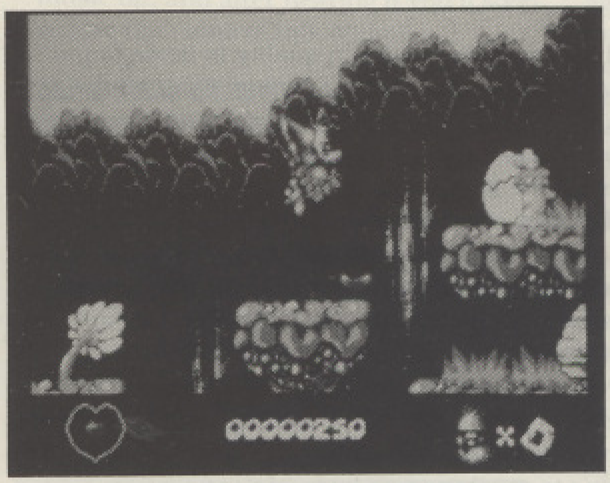
Well, the character concept is quite nice - instead of the usual handsome barbarian with bulging muscles you get to play the part of Chuck Rock, a caveman slob with an enormous beer-gut! His gorgeous wife, Ophelia Rocks, has been dragged away by the evil Gary Gritter (you get to see all this in the intro) and armed with nothing but his beer-gut and his size 14 feet Chuck must fight his way across the prehistoric landscape to rescue her, meeting all the usual anachronisms along the way.

The scrolling is nice and smooth and, although you are basically trying to travel to the right, you will have to travel up and down and back to the left to find your way across the platforms and past all the traps and monsters. The only useful things you will find along the way are rocks - which you can chuck! But the rocks are also necessary as umbrellas and moveable platforms. These will help you solve some of the problems along the way. Elsewhere, when you find a seemingly impassable dead-end you will have to enlist the aid of certain local creatures like the brontosaurus which will carry you across the swamp, and a pterodactyl which will fly you to an otherwise un reachable platform. Usually you will have to gently persuade them to help - this is done by the simple expedient of chucking a rock at their head, or giving them a belly butt with your powerful gut.



The monsters are many and varied, lots of thought has gone into making some interesting variations on the usual creatures - some breathe fire at you, some divide into smaller and smaller creatures until they are finally small enough to stamp on, some even throw snowballs at you! And of course at the end of each level you will find the unavoidable end-of-level monsters - a Sabre- Tooth Tiger, a Woolly Mammoth, a Loch Ness Monster and so on.

The controls are simple - just use the joystick to move around, jump and duck, and the button to pick up and throw rocks, do a belly butt, or kick (if you are in the air). Two of the levels have watery areas which you must swim through - remembering to come up for air regularly. You get four lives and you can survive about half a dozen blows before losing one - but there is a trail of hearts left by Ophelia which will restore your energy. The levels are split into up to five zones each and if you die you restart at the beginning of the current zone.



The graphics are superb throughout - not just the monsters and the animation, but also the backgrounds - the dead dinosaurs littering level five are a joy to behold!

Chuck Rock is undoubtedly a very high quality arcade game that will have you trying over and over again to get just that little bit further. My only criticism WOULD have been that you have to start from the beginning of the game each time you lose all your lives. However Core have built in cheats to allow you to restart at any zone and any level, and also to have infinite energy. We will be publishing those next issue. So if you get fed up with dying you only have to wait a couple of months and then you can get it down off the shelf, dust it off, and have a go at all the levels you couldn't reach before! Why can't all arcade games provide that kind of facility?

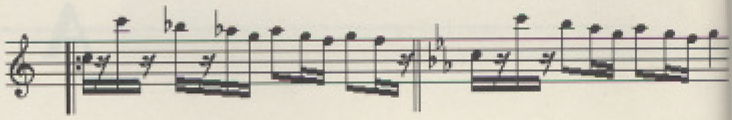
" a very high quality arcade game "

If you have an old ST with an SF354 then it probably won't load (mine won't), though Core say they can send other single-sided diskette users a third diskette to allow them to play the complete game on a single-sided drive.

Title:	**CHUCK ROCK**
Publisher:	**Core Design**
Price:	**£24.99**
Reviewer:	**John Sweeney**

- ***SIGHT & SOUND*** *- great graphics - lots of humour; usual sort of arcade pows and zaps*
- ***GAMEPLAY*** *- high quality joystick-driven arcade game - well balanced so that you can get a little further each time*
- ***VERDICT*** *- a must for all arcade game addicts*

MAKING MUSIC WITH YOUR ATARI



John S Davison's regular guide takes a look at a new Yamaha Drum machine

Have you ever wished you could play drum parts straight into a MIDI sequencer running on your Atari without having to resort to step-time input or fiddle about using a synth keyboard? Yes, I mean by beating out the rhythms using drumsticks or your bare hands! Well, now you can with the aid of a new product from Yamaha - the DD-11 Digital Percussion instrument. It's really a souped-up pre-set drum machine, but to refer to it as such would do it a great injustice, as it offers so much more than an ordinary beat box! A quick run down of its features will soon show you what I mean.

It can play 100 different pre-set rhythms ranging through various flavours of rock, pop, funk, metal, R&B, jazz, latin, etc. Each has its own intro and ending pattern plus two different "fill-in" patterns you can trigger at any time to provide rhythmic variety. It plays them on instruments selected from its 35 onboard sampled drum sounds, which include bass and snare drums, toms, cymbals, congas, bongos, timbales, and other percussive exotica. In addition it has five "tuned percussion" sounds - marimba, vibraphone, steel drum, timpani, and "orchestra hit" which can be played over a one octave pitch range using the DD-11's eight percussion pads and footpedal.

There's also a further set of synth voices including basses, pianos, brass, and guitar sounds which can be used to provide an automatic bass/chord accompaniment to go along with the drum rhythms. There's even a built-in chord sequencer allowing the construction of chord sequences for up to three songs - so the DD-11 can provide a complete drums, chords, and bass backing arrangement for you to play or sing along with. It's rather like a hardware version of the "Band-In-A-Box" software package I raved about in these pages a couple of issues back. It also has a built-in stereo amplifier and two speakers, so the whole thing is self contained. The final icing on the cake is that it has MIDI IN and OUT sockets so you can connect it into an existing MIDI system and/or to your computer.

PADS AND PEDAL

It's those percussion pads and footpedal that make the DD-11 so different from ordinary drum machines. The circular rubber pads are big enough to hit with drumsticks (or your hands if you prefer), and they're "touch" sensitive, so by hitting them harder you produce a louder sound. Any nine of the DD-11's percussion sounds can be assigned to the pads and footpedal, allowing you to design your own drumkit. You can then play it as a drummer would, providing the whole rhythm part yourself in real-time. Alternatively, you can play along with any of the pre-set rhythms, adding your own little touches as required. It even has a "synchro break" feature, which cuts out the pre-set rhythms while you play your own drum fills and solos! If required the footpedal can also be used as a start/stop switch or for triggering automatic fill patterns, intro/endings, or synchro break.

When hit, the pads and pedal also generate MIDI Note-On messages, which are transmitted via the MIDI OUT to trigger sounds in other instruments in your MIDI setup, or for recording by a sequencer program running in your computer. Once recorded the rhythms can be edited, quantised, and otherwise fiddled with in the usual way, then played back on the DD-11 via its MIDI IN connection. So now the DD-11 functions as a drum expander module! You can also get at the tuned percussion and synth voices via MIDI, so the DD-11 can also act as a multitimbral synthesiser, albeit a rather limited one.

I have only two criticisms of the DD-11. Firstly, you can't program your own customised rhythms into the box itself. You have to do it externally using a sequencer. Secondly, it doesn't transmit or respond to MIDI clock messages, so you can't synchronise it with a sequencer, i.e. lock its playback tempo to that of your sequencer. But then at this price level you can't have everything.

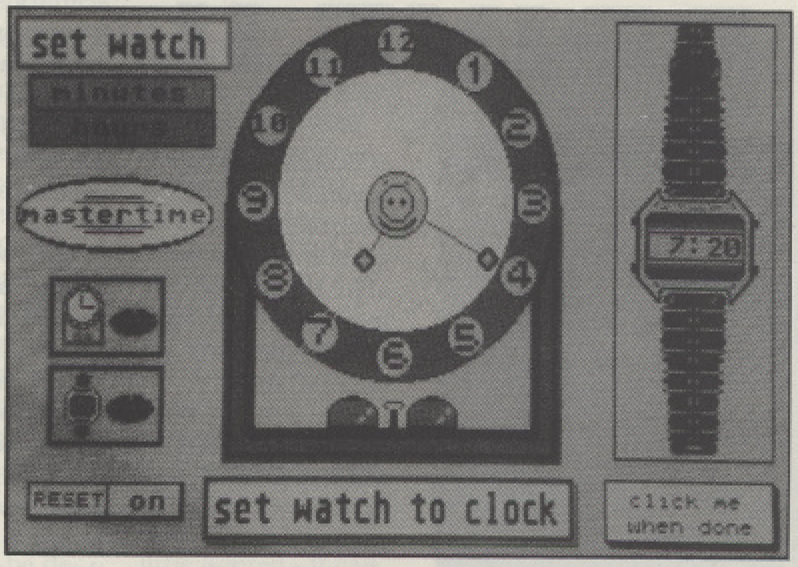
HOW DOES IT SOUND?

The DD-11 produces sounds similar in quality to those found in the latest Yamaha PSS synthesisers, i.e. more than adequate for home use. They're quite full bodied, clear, and generally of good quality, especially if played through external amplification and speakers via the line-out socket. However I did find the sample length rather short sometimes, e.g. cymbals don't sustain as much as I'd like. The tuned percussion is less successful, in particular steel drums and orchestra hit sound rather thin. The synth sounds too were no real match for a proper synth, but then you could hardly expect them to be.

Considering it's much more than a straight drum machine, the DD-11 is a real bargain. So, if you're looking to expand the percussion side of your MIDI setup make sure you check it out. There's nothing to touch it at its price of £149.95 - cheaper if you shop around.

In case you're wondering why there's only one page of Making Music this time, it's because I've had to sacrifice some space to make way for the Sound Sampling series starting in this issue. Accordingly, details of the new PSS Soundshifter voice patch editor promised in the last issue will have to wait until next

MASTER TIME



Those B.Ware guys have been busy again, and this time have come up with a neat educational program called Master Time, designed to help teach children to tell the time. It's supplied on one single sided disk and the latest version runs in colour on any ST/STE.

Master Time consists of five major sections, called Master Clock; Master Watch; Master Time; Play House; and Doodle. The first three are concerned with the serious business of learning to tell the time, while the last two are bonus games included as light relief.

There's also an "options" screen from which you can determine how the program operates. You can decide how the movement of the minute and hour hands are linked on the analogue clockface - e.g. permitting the hour hand to move halfway between the hour numerals on the half hour, or to jump in hourly increments, or to be completely independent of the minute hand. It's also possible to set the number of questions the program asks before increasing the difficulty level, and to decide the form in which the time is spoken. Yes, this program uses sampled speech, with choice of analogue or digital style, i.e. whether 10:45 is spoken as "quarter to eleven" or "ten fortyfive". Finally, you can also turn the program's music off, and after hearing it you'll soon realise the value of this option!

MASTER CLOCK teaches time telling using an analogue clockface. This shows quarter and half hour markings plus the actual minutes value against each of the normal numerals. The face is also colour coded to indicate "past" and "to" the hour. Overall, it's rather like those kiddies "time teacher" watches made by Timex and others. The clock's hands can be independently moved by clicking on "hour" and "minute" buttons, and after setting them you can click on a "mouth" icon, which then speaks the time in the chosen style. The speech samples were produced with an ST Replay cartridge (what else?) and are quite clear and easy to understand.

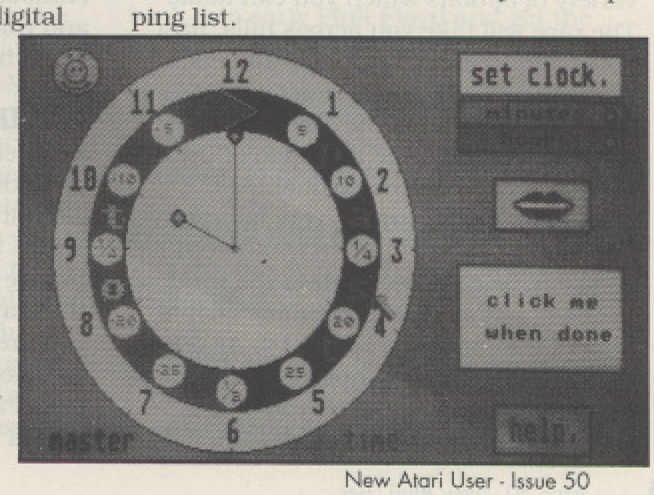
The program's voice asks you to set a specific time on the clock. Actual time requested depends on the current level reached - these correspond to full hours, half hours, quarter hours and "random" times to the nearest five minute boundary. It's a pity there isn't another level which goes down to individual minutes. The requested time is set by clicking on the hours and minutes buttons as described earlier. If correct, the voice congratulates you and you're treated to a "musical" reward. Otherwise you can try again or perhaps click on the "Help" button, when the program steps the minute hand then the hour hand to the correct time, speaks it, resets the hands to 12 o'clock and then prompts you to try it yourself!

MASTER WATCH is identical in concept to Master Clock except it uses a digital watch instead of an analogue clock. Also, it speaks the time in digital style unless set otherwise on the options screen. Incidentally, you can return to the options screen at any time to change settings. Unfortunately this resets whatever module you were previously using, so rather annoyingly you have to start again from level 1 when you re-enter it.

MASTER TIME combines the features of Master Clock and Master Watch. You have both timepieces onscreen simultaneously, and can choose to set the analogue clock to the time shown by the digital watch, or vice-versa. There are two speech buttons, one for each timepiece, so you can independently check the time currently set on each one. Normally each would be spoken in the appropriate style, but if this is confusing the options screen allows you to have them both spoken in either analogue or digital style.

The two bonus games are very simple but nonetheless I'm sure children will find them an entertaining break from their timetelling lessons. **PLAY HOUSE** is a "Simon" type game, but instead of having to memorise an ever increasing sequence of colours you have to remember the positions of pigs appearing randomly at the windows and door of a house. To win a round you have to click on the windows and door in the same sequence in which the pigs appeared at them. **DOODLE** is a very simple drawing program which reminds me of those old "Etch-A-Sketch" toys. It allows you to construct pictures or patterns from straight lines drawn in any of eight directions, six colours, and five line styles. Lines are drawn by clicking and holding on direction arrows which control the movement of the drawing stylus.

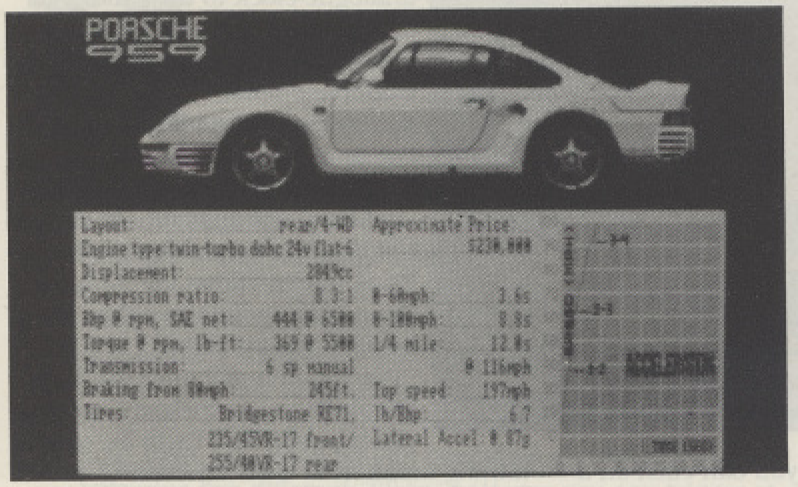
In summary, I really liked Master Time. The care put into its design shows everywhere - in its visual appeal through big, colourful graphics; its sensible options; extreme ease of use; superb Help facility; and even the inclusion of those two simple games. However, it's the program's use of sampled speech which puts it in a class of its own. So, if you need a program to help teach your kids to tell the time, make sure this one's on your shopping list.



Title:	**MASTER TIME**
Publisher:	**B. Ware Software**
Price:	**£17.95**
Reviewer:	**John S Davison**

RACING

THE DUEL
TEST DRIVE II



Compared to the original 'The Duel' is absolutely superb. It is unbelievable, the difference in quality between the two games is astounding!

The original Test Drive, from Accolade software was received with mixed reviews. On one hand it was a novel way of portraying a racing game - as opposed to the usual run of the mill 'Pole Position' style game, this was billed as being a race simulator. It did not however, in my opinion, really live up to all the hype.

In response, Test Drive II has been released. This time the graphics and sound have been improved and you have the option to load in data disks for both scenery and the types of car that you are driving - more about these later. The basic idea behind the game is that you are in a racing duel (hence the name) between two high powered and very fast road cars. The Ferrari and the Porsche 959 are both capable of speeds in excess of 200mph and they can scream from 0 to 60 in less than four seconds. You must choose between either of these awe inspiring cars and race off through all kinds of different scenery.

At the start of the game you have a variety of options which you can make The race will take you across hills, past lakes and trees and through tunnels. Along the way, not only must you concentrate on winning the race, you must also contend with the attention of the over zealous Police department!

Graphically the game is very impressive. The view of the dashboard is different for each car, and the view out of the window is a fast and smooth three dimensional view of the road as it zooms by. All other cars on the road are superbly detailed, as are the trees and rocks as you watch them fly by at extreme speed.

THE SUPERCARS DISK is an accessory disk which contains five elite automobiles from around the world which are all considered one of the best in their class. With this disk, you can load and use any of the following cars.

The 1988 Lotus Esprit Turbo, capable of 160mph is one of the fastest production cars ever to come out of the UK. The Ferrari Testarossa is a classic of its time, $134,000 worth of luxurious performance. The Porsche 911 RUF is a custom built, twin turbo 911 which is the king of the German Autobahns. The 1988 Lamborgini Countach is the king of the Supercars. Once one of the fastest production cars in the world, this is a real stunner. Finally, the 1988 Corvette ZR1 is an American supercar which was designed with the intention of producing the worlds fastest production car.

All of these have their own driving characteristics and design styling, and these features are all incorporated into this quite amazing supplement disk for Accolades, 'The Duel'.

The dashboard fascia of each car is accurately represented on screen, as is the performance. Ever fancied a go in a Lamborgini Countach? I know I have, and this is probably the closest I will ever get to having a try!

CALIFORNIA CHALLENGE is another supplement disk which lets you drive the car of your choice through the beautiful and diverse California landscape. there are seven races in all for you to race along and each incorporates all of the major landmarks of the areas which you are tearing through. For example, on the race which takes you along the California and Oregon border you are catapulted into a scenario surrounded by the beautiful redwood trees. These are certainly little more resilient than your car so you'll have to drive carefully!

Other races will take you along the Santa Barbara coast, and others will thrust you into the palm tree and beach filled area of Santa Monica. All of the scenarios are beautifully drawn and really manage to conjure up the image of the areas which they are trying to portray. As with the scenery to the main game, the animation of all of the objects as they zoom by is beautifully smooth and the colours are used to a wonderful effect.

As well as the two scenery disks mentioned above, there are also a further two disks available which I have not been able to get my hands on. Firstly there is the Muscle cars supplement disk which gives a further five cars for you to play around in. What makes a car a 'muscle' car I am not entirely sure, but no doubt it will be equally as impressive as the Supercars disk. Secondly there is a European scenery disk which is, guess what? A romp across the European countryside!

Overall I was very impressed indeed with the quality of Test Drive II. The graphics and sound of the basic game are of an extremely high quality. The sound is some of the best quality I have heard on the ST. The atmospheric title screen music utilizes sampled sounds to a stunning effect and the game itself is filled with sampled sounds of engines roaring and tyres squealing!

Most of these three dimensional perspective racing games are an absolute bitch to play. Invariably they are difficult to control and thoroughly boring. The Duel however, is an absolute pleasure to play. The graphics are smooth and each of the cars are surprisingly easy to drive.

The inclusion of an option to use supplement disks is a really good idea, giving the game much more scope than your average racing game. This is a thoroughly original approach to this style of game. Normally I find perspective racers a bit of a bind, but I can safely say that I really liked the Duel.

To sum it up, I would have to say that this is much more of a simulator than a game, and it is something which I can thoroughly recommend you have in your collection.

TEST DRIVE II: THE DUEL - £24.99
CALIFORNIA CHALLENGE - £11.99
SUPERCARS - £11.99
From Accolade
reviewed by John Davison jnr

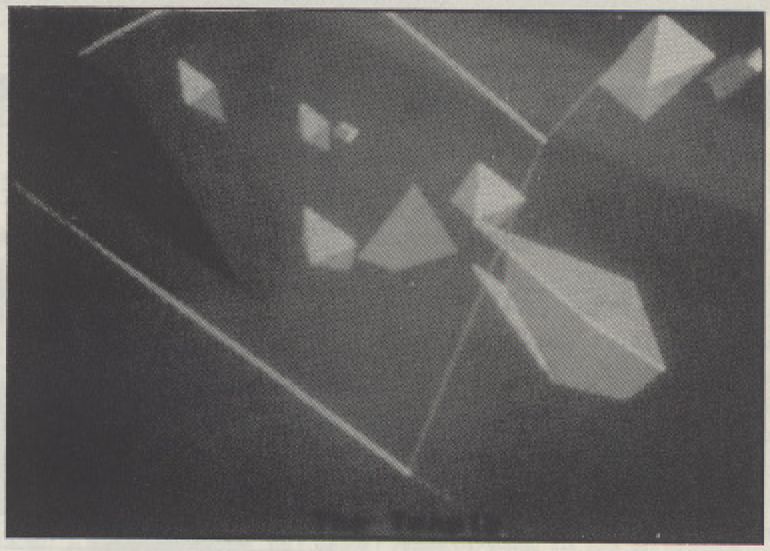
THE UNDEFINABLE!

ALPHA WAVES

Alpha waves are defined as brain waves emitted when a human is in a state of relaxation. They were discovered in the 1920s, and were one of a quartet of Brainwaves signifying various levels of mental activity. It was later proven that various cycles of light and sound could produce the same effects on the brain and stimulate certain moods or attitudes. The discoverer of these mental facts was a Dr. Hans Berger although I do not believe that he could have envisaged his discoveries being used in such innovative and Gallic ways as this software now under review manages to show.

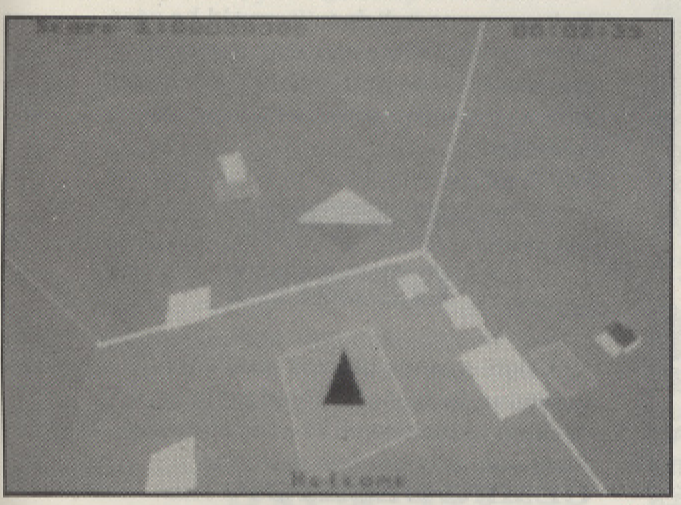
The experience, for it can hardly be described as a mere game, of Alpha waves is a little unnerving, for although there is a possibility of a game for points and attempts to make goals the subtle side is the non-competitive relaxation and stimulation mode. This is the sort of program Jeff Minter has tried to achieve over the years and it involves controlling pyramids that gently bounce around congenially coloured rooms looking for an exit. The game really is that basic, but there are a gamut of relaxing and peculiar Jean Michael Jarre type sounds to accompany this almost free fall like existence.

The game mode is probably the easiest concept to grasp thus I shall start there. The player's objective is to guide a little pyramid through 256 different 3D rooms.



Each room offers a different problem and method of escape, although all rooms have various platforms to bounce upon to gain the necessary height to leave before time runs out. Although the concept is extremely basic the gameplay is quite difficult and once it is realised that control over the shape is a little limited - it can move forward and backward or left and right with no real problem - gaining and maintaining height is all a matter of propelling the object from various platforms. This mode of propulsion is fine until you miss the platform you wished and your pyramid sinks slowly and gracefully to the floor never to bounce again. Of course nothing can be so uncomplicated and the game includes some most disturbing creatures that will try to "bounce you" out of the way and deflect you from your intended course. If that does not make your job hard enough some rooms need keys to exit and they too must be found.

Indeed there is a hint of a platform and ladders game here although the innovative style tends to disguise this feature enough to maintain the illusion of great originality.



The colours and sound are striking and most atmospheric, I found myself losing concentration purely because of the mesmeric effect of the combination of ocular and aural stimuli, the graphic quality is very strong and needs colour to make full use of the game. Indeed the game owes its basic premise to the sound and colour and thus more than some games they are its very foundation.

Once the frustration of bouncing has reached your playing fingers then look at the alternative meditational, non-competitive mode. This allows you to choose one of the 256 areas which relate to various areas of the brain. The alleged effect in "emotion" option is to stimulate that area of the brain by the focus on unstressed play and thereby allow an almost meditational high to come upon the participant. I must admit that in playing this I did not necessarily feel the inner peace or relaxed attitude the writings felt I ought to but I was impressed with an innovative use of ideas and psychology in new software.

My overall impression is that the addictiveness of the game will wane fairly quickly, and that it is a different form of Marble Madness or similar games. The fact that the cat actually calmed down and watched the screens that related to peace and harmony strengthens the producers claims that the colours and music have an effect. I on the other hand found it induced frustration at many intervals and left me feeling that inner relaxation and peace is better achieved with a good CD and a glass of finest malt whisky.

If you have pretensions to rediscovering pop art or hippydom then this software will certainly bring back memories of Woodstock and those strange squiggly oil lamps so beloved of the Beatles and Timothy Leary. If such references mean little or nothing to you then definitely try before you buy, but beware demo versions may be attuned to your acquisitive brain centres! Meanwhile I shall settle back into early Pink Floyd and get the Kaftan from the wardrobe.

- ***GAMEPLAY*** *- Fairly psychedelic, easy to control but possibly a disguised sheep in hippy clothing*
- ***SOUND AND GRAPHICS*** *- Both superb, this is the basis of the game and it shows*
- ***OVERALL*** *- An interesting experience, worth looking at but I prefer real music and proper light shows*

Title:	**ALPHA WAVES**
Publisher:	**Infogrames**
Price:	**£24.99**
Reviewer:	**Damon Howarth**

PD WORLD

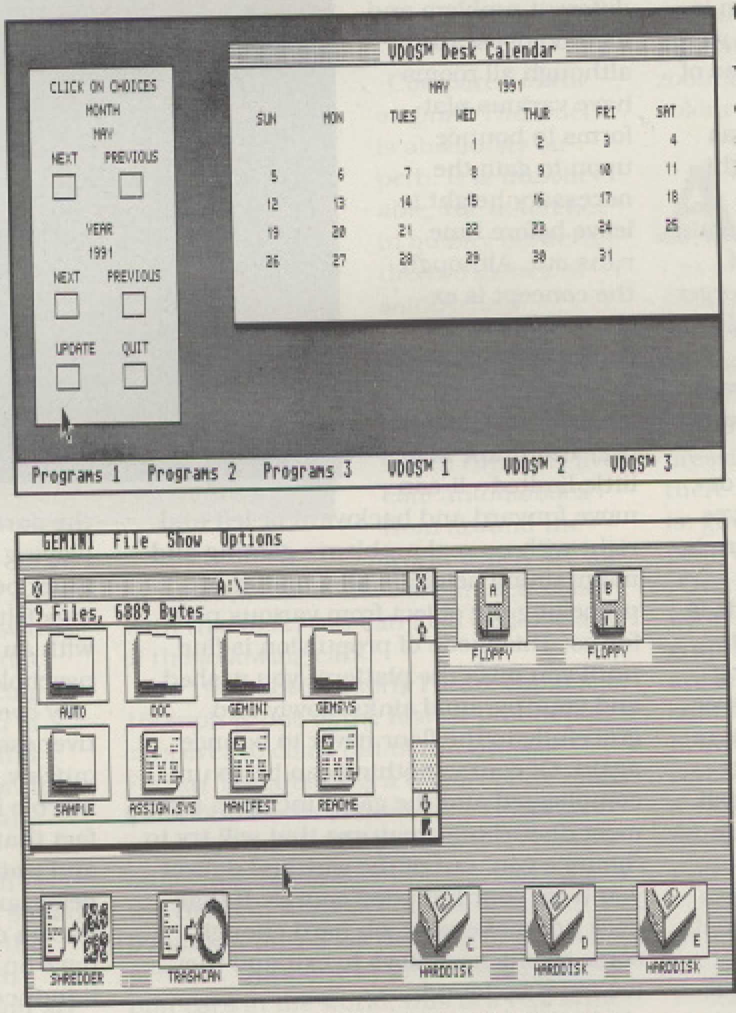
Paul Rixon's

Which aspect of the ST would you most like to see improved? The keyboard? The internal sound-chip? Most people who use their Atari for purposes other than playing games would say they'd like to see a better GEM desktop. After all, Atari's graphical interface has changed very little since the ST first appeared in 1985 and, whilst it's made a valuable contribution to the ST's success, similar environments on other machines are (as any Macintosh user will tell you) considerably more advanced.

Even Atari themselves, who aren't renowned for responding to criticism, have finally recognised that the time has come for the original desktop to receive a comprehensive revamp. Last year in Germany, where Atari have traditionally been taken more seriously than elsewhere, they tore off the wrappers of a brand new desktop designed for the TT workstations. The TT desktop occupies more memory than that fitted to current ST machines which means that there's room to pack in a wide range of improvements. These include keystroke short-cuts, the ability to place file icons on the desktop and a completely revised modular control panel. Extensive reviews have appeared in ST World (#53) and ST Applications (#1). Rumour has it that the new desktop will also be fitted to the STE, but this isn't a great deal of comfort to existing owners, especially since the new version is not compatible with pre-STE ROMs so hardware upgrades are out of the question.

The only affordable way for most serious users to beat those desktop blues is to invest in a software-based replacement. **NEODESK** is the most well-known commercial solution and has rightly enjoyed ecstatic coverage in all the major Atari publications. Neodesk is clearly an excellent package, but it isn't exactly cheap - so what about the competition?

Among the earliest successful attempts to tackle the ST's desktop deficiencies is a shareware program called **VDOS**. This requires a system with two disk drives or at least one megabyte of memory. VDOS provides an altogether different environment to the traditional GEM desktop. It doesn't use icons, but it does have a selection of unusual bottom-up menus (as opposed to drop-down ones!) which provide access to a multitude of DOS commands, modelled on both the MS-DOS and UNIX operating systems. They include the standard disk operations such as format, copy, delete and others, and also some less obvious ones that have to be missed to be appreciated! At the click of a mouse button you can display free memory and disk space, check the status of your printer, search for files and 'touch' them with the current time and date. There's a built-in screen saver, a handy on-screen digital clock and a neat calendar that shows the current year and month by default. All the options have keyboard short-cuts to benefit the experienced user.



VDOS (top) comes with its own accessories whilst GEMINI (bottom) replaces the whole desktop

By far the most useful function of VDOS, particularly for hard disk owners, is that it enables you to specify up to 53 files which can then be executed with a single mouse-click or key press combination. The DOS menus have ready-titled slots for common applications but there are also three empty menus which can be filled with any type of programs you wish. Programs that aren't defined in this way have to be loaded via an 'execute' menu option and the normal file selector. The full VDOS system works in medium or high resolution only (for mono users there are also a couple of bonus utilities!) but for those people who conduct their computing on a television, the disk includes a separate version. This implements the 'slots' facility of VDOS, so you can have a handy menu of commonly-used software, but it doesn't offer the DOS commands. The whole disk is packed with various utilities and ample documentation. If you find VDOS indispensable, the authors would appreciate a suitable financial contribution for their efforts - in return they offer to send you a comprehensive manual and regular updates. This isn't a very new disk so it would be wise to write first before sending away any payments to the States (I'd be interested to hear from anyone who has done so recently).

ENTER GEMINI

If VDOS sounds like too much of a radical upheaval and you'd prefer your desktop to look more like the standard Atari one, why not test drive the **GEMINI DESKTOP**? This famous shareware utility is very much like Neodesk and although it's obviously not as powerful, it might well have all the facilities you need. As suggested by its name, Gemini wasn't designed as one program, but two. The thinking behind the concept is that WIMP environments

are all very jolly for some purposes, but at other times it would be much easier to use a traditional Command Line Interpreter (CLI). Gemini therefore consists of a friendly graphical front-end called Venus and a CLI, known as Mupfel (apparently the name translates from German into something about a Penguin who lives in a shell!). Mupfel is an option on one of the menus in Venus. The CLI incorporates an incredible 46 functions which are generally modelled on UNIX shell commands. This means you have either got to get accustomed to typing things like 'cat' and 'ls' instead of 'type' and 'dir', or if you don't want to persevere with UNIX terminology, use the 'alias' command to re-define some other words instead. You can also assign the function keys to common operations. Start-up files can be created to permanently configure the system to your requirements.

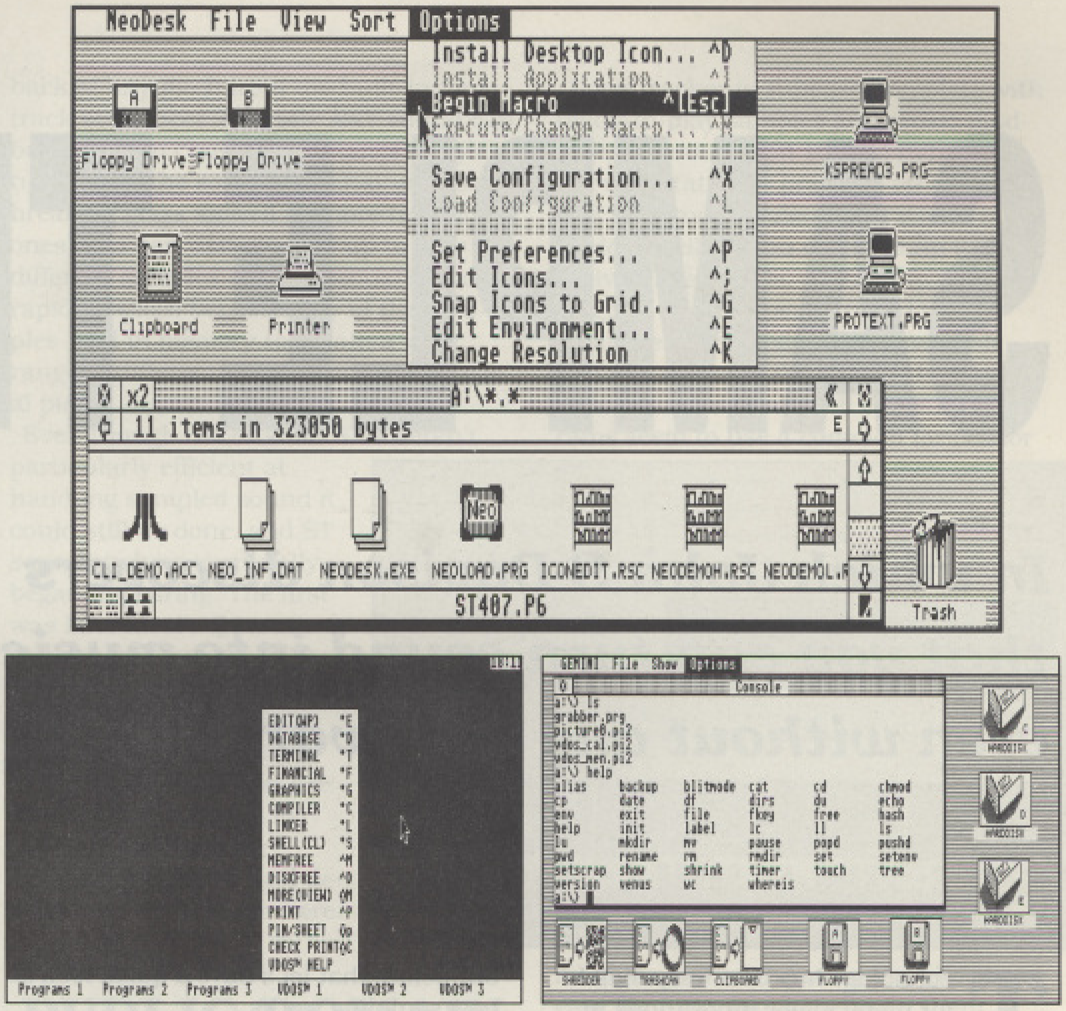
Venus presents a host of advantages over the standard GEM desktop. Instead of a single disk icon there are 6 to choose from, and in place of the usual file icons there are 22 alternatives. You can enter rules in the form of filename patterns to determine when the different icons should be used. The contents of a disk can be viewed with small or large icons, or text, with the usual sorting criteria or in an unsorted state, which is ideal for re-arranging an AUTO folder. Wildcards can be entered to mask out unimportant files. The big plus that's again especially valuable to anyone with a hard disk is that file icons can be dragged onto the desktop. It's then possible to run programs just by clicking on the installed icon, which avoids having to search for and open up the appropriate folders. A minor annoyance, however, is that text files can only be viewed through the CLI. If you choose an option by mistake, you needn't panic as an 'undo' feature will restore the previous state. There's also a recoverable trash can that proves its worth when you suddenly have second thoughts about deleting that unwanted(?) file. The disk contains lots of documentation, though the catch is that much of it is in German! However, enough has been translated to allow you to fully appreciate the system. More recent examples of this disk may well have more English text than the copy I received. The Gemini Desktop is suitable for one megabyte machines with TOS 1.2 or later, although you might find an earlier version elsewhere for TOS 1.05 which includes Venus and Mupfel as separate programs.

BACK TO NEODESK?

So, you're still convinced that Neodesk is the answer to your problems? Before you sign away forty pounds of your hard-earned savings, ask for a copy of the **NEODESK 3.0 DEMO**. Like the Gemini Desktop, Neodesk has both a graphical interface and its own bolt-on command line interpreter, though it also boasts a myriad of other exciting functions. Reviews of Neodesk 3.0 have appeared elsewhere (check out the Editor's review in NEW ATARI USER #47) so I don't intend to repeat what's already been said. Obviously, the publishers don't want you to just try the demo, they'd rather you paid for the real thing, so a number of options have been disabled in the freeware version. File copy and move operations appear to work, but don't really, and you can't format a disk, run another program or save the desktop configuration. You can experiment with most options, such as the marvellous icon editor that enables you to define unique icons for your files, but there's generally a hitch that prevents you completing the task - for example, you can't save the icons you create. Incidentally, even after you've bought a copy of the commercial package (as you probably will once you've seen the demo!) you'd be wise to explore the Public Domain.

NEODESK ICONS is a disk containing (as you might expect) dozens of pre-defined icons to use with Neodesk - this could be invaluable if (like me) you don't have the patience to fiddle with the icon editor! Anyway, Neodesk 3.0 has more features than you could possibly imagine - so why not try out the demo and see for yourself?

That's it - don't forget to check the library update leaflets or grab a copy of the PAGE 6 Catalogue Disk for information on the latest programs. All the disks added to the library are first subjected to the rigorous PAGE 6 evaluation procedure. Kinda makes you feel sorry for the ones that don't get in!



Top - NEODESK, try it as a demo first. Below - other views of VDOS and GEMINI

HOW TO GET THEM

All of the disks featured in PD World are available from the PAGE 6 ST library. Each has a unique reference code which you should use when ordering or making enquiries. Please contact PAGE 6 if you don't have a copy of their Accessory Shop leaflets and check the system requirements for each disk. THE PAGE 6 CATALOG DISK containing a full list of disk names and contents is available from the library, priced at £1. The disks referred to in this article are:

ST110 - VDOS
ST228 - NEODESK ICONS
ST286 - GEMINI DESKTOP
ST407 - NEODESK 3.0 DEMO

Prices for standard disks are £2.95 each or £2.50 each for ten or more
Write to PAGE 6, P.O. Box 54, Stafford, ST16 1DR
Telephone 0785 213928 or FAX 0785 54355 with credit card orders

SAMPLE THIS!

In which John S Davison discovers that you can turn sound into music even without any hardware

Technology has been responsible for many major innovations in the world of music in recent years, making possible such developments as MIDI, synthesisers, and samplers. The first two mentioned have already been covered at length in these pages, but sound sampling hasn't. It's now time to put that right, so over the next few issues we'll be looking at how YOU can start making music (or even just exciting noises!) using sampled sound - via your Atari computer, of course!

A SAMPLER?

Let's start by defining what a sampler is. From a musician's viewpoint it's similar to a synthesiser - both are electronic musical instruments; can produce an incredibly wide range of sounds; and can be played from a keyboard or via MIDI. But there's one fundamental difference. Generally speaking, a synthesiser's sounds are built up from internally generated sound elements, while a sampler uses "recordings" of real sounds as its sonic starting point. It can digitally record ANY sound directly into its memory; edit and process it in various ways; then trigger its playback at any required pitch. The only problem is, dedicated samplers tend to be horrendously expensive!

From a technology viewpoint a sampler is remarkably similar to a computer. In fact, it doesn't take much additional kit to turn your Atari into one. It can be done inexpensively too, bringing sampling within reach of everyone. We'll be looking at ways of getting started later, but before that let's have a quick look at how sampling works.

ANALOGUE TO DIGITAL

All sound can be thought of as pressure "waves" propagated through the air. We can pick these up via a microphone and convert them into a continuously varying signal voltage which mimics them in electrical form. The signal waveform may be visualised by graphing its voltage against time, resulting in something like Figure 1 for a simple sound. Such a signal is described as an "analogue" signal, because of its essentially continuous nature.

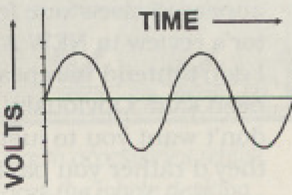


Figure 1 **Original Analogue Waveform**

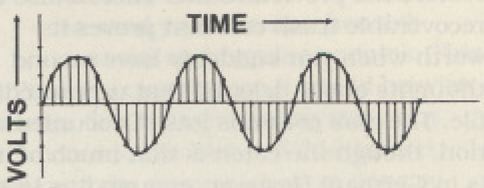


Figure 2 **Sampling Points**

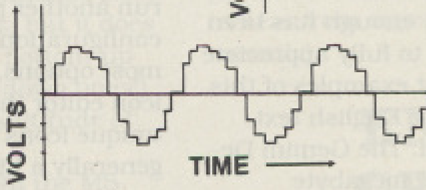


Figure 3 **Sampled Waveform**

Digital computers like the Atari ST can't work directly with this analogue signal. By their very nature these machines can only deal with data presented as discrete values. So, the signal must first be digitised - converted into a series of numeric values representing it - via a technique known as "sampling". Basically, this involves "taking a reading" (or sample) of the analogue signal voltage at known intervals of time (e.g. every 100 microseconds); converting each into its numeric equivalent; and storing the results in an array in memory. Figure 2 shows conceptually how this works - the height of the vertical lines represents the signal voltage value at each sample point, and the distance between them the sample interval. This "analogue-to-digital conversion" is handled by special add-on hardware, usually provided in cartridge form to plug into the computer's cartridge port. Once sampled the signal may then be easily manipulated by software, e.g. displayed graphically, edited, saved to disk, replayed, etc.

Surprisingly, your Atari can replay sampled sound without additional hardware, as it already has a built-in "digital-to-analogue conversion" capability thanks to its sound chip. It's achieved by reversing the original sampling process - at known time intervals successive values from the data array in memory are converted into voltages, which eventually drive a loudspeaker to recreate the analogue sound. If you graphed these discrete voltage values you'd find the overall signal would only approximate to the original analogue signal, as shown in Figure 3 in exaggerated form. It's unlikely to be absolutely identical to the original, as accuracy depends on the "resolution" and "sampling rate" of the hardware used, as we'll see later in the series.

SAMPLING FOR EVERYONE

Sampling on the Atari took off around 1986, when a small company called 2-Bit Systems (yes, the MIDI Master guys!) produced their innovative Replay cartridge. This allowed a 48K Atari 8-bit machine to sample sounds directly from an analogue audio source, perform simple editing, and play them back via the TV/monitor. You could even use the sounds in your own programs if you wished - a technique now widely used by games programmers everywhere.

The package also included the DigiDrum and DigiSynth programs. DigiDrum turned your Atari into a programmable drum machine by loading in a set of sampled drum sounds and playing them from a simple grid based sequencer. DigiSynth went further - it could vary the speed of the digital-to-analogue conversion process and hence replay sounds at different pitches, allowing tunes to be played on a single sample. Admittedly the sound quality wasn't marvellous, but this package set the direction for virtually all computer based sampler developments from then on.

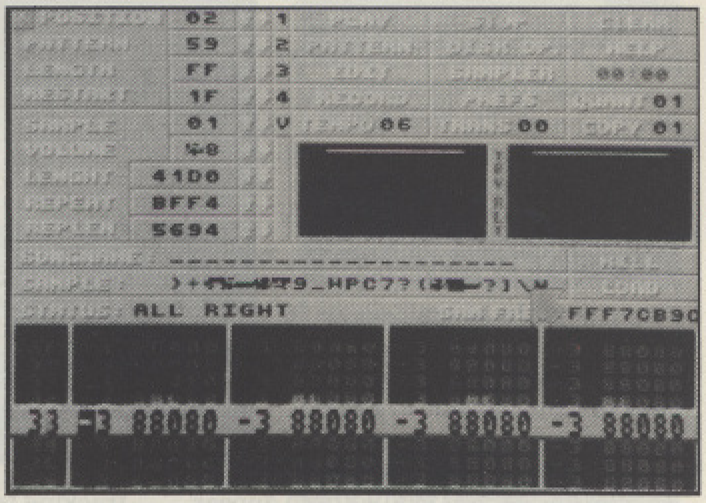
Before long 2-Bit Systems launched ST Replay, bringing sound sampling to the ST. This used similar principles to the original Replay, but achieved higher quality sound through better hardware and software. Since then 2-Bit have steadily improved the package, bringing out successively better versions and additional spin-off products, such as Replay 4, Replay 8, Replay Professional, and others. They've also changed their name to Audio Visual Research and teamed up with Microdeal to market their products.

ENTER THE SOUNDTRACKER

Meanwhile, Commodore launched the Amiga (hiss! boo!). I hate to admit it, but its internal sound chip knocked spots off the ST's. It was designed from the start to work efficiently with sampled sound, and could produce stunningly good results - in stereo too! It didn't take long for the Amiga PD programming crews to begin exploiting this, resulting in the famous "SoundTracker" programs - a term now used generically to describe all sample sequencing programs.

Soundtrackers are like vastly improved versions of 2-Bit's old DigiDrum/DigiSynth software. Basically, they allow you to load a collection of sound samples into memory and to trigger their playback at any pitch from the built-in four track sequencer. Literally ANY sound can be used. You could, for instance, play a tune using the sound of a chainsaw or breaking glass as well as more traditional ones! You can usually play up to four different samples simultaneously, and rapidly switch between any of the samples held in memory to obtain a wide range of different sounds within a musical piece.

Even though the original ST's weren't particularly efficient at handling sampled sound it could still be done, and ST soundtrackers eventually began appearing. The first was Microdeal's Quartet. More recent was the TCB Tracker, reviewed in Issue 47. There are now Public Domain soundtrackers available, and the best are already in the Page 6 PD Library. They're quite amazing programs, and deserve further mention here.



PUBLIC DOMAIN SOUNDTRACKERS

There are two main types of ST soundtracker. The first is a "player" program. This simply plays back a soundtracker music "module", which is a file containing both music data AND the sampled sounds it plays. Page 6's PD Library now includes several disks, each containing a player program plus assorted modules. These were ported over from the Amiga (aaarrgghh!), hence their title - Amiga SoundTracker Volumes 1 to 5. The player program is very basic - it just loads and plays music modules. A much nicer player is the Equinox Soundtracker, with its cleaner user interface and colourful graphics.

These disks are a revelation if all you've heard is the ST's normal weedy internal sound. The samples provided include various drum sounds, bass guitars, synth sounds, brass stabs, strings, sundry sound effects, and even rap style vocal samples! They're sequenced together into some very exciting music - not all to everyone's taste perhaps, but entertaining nonetheless. Sound quality can be surprisingly good, especially when routed through your hi-fi system.

If you want to create your own music you'll need the second type of soundtracker program, of which ST NoiseTracker is an excellent example. In operation it's almost identical to the commercially produced TCB SoundTracker mentioned earlier, and produces results that are easily as good.

NoiseTracker is supplied complete with ready-to-play samples and music modules, so you can get started right away. Documentation is provided on the disk, and the program also has a useful built-in Help facility. You can load up to 31 individual samples, each up to 64K in length - memory permitting! Limited sample editing facilities are available, and you can save/load individual samples too. Incidentally, all these PD programs seem to use a common format for modules and sound samples, allowing easy file interchange between them.

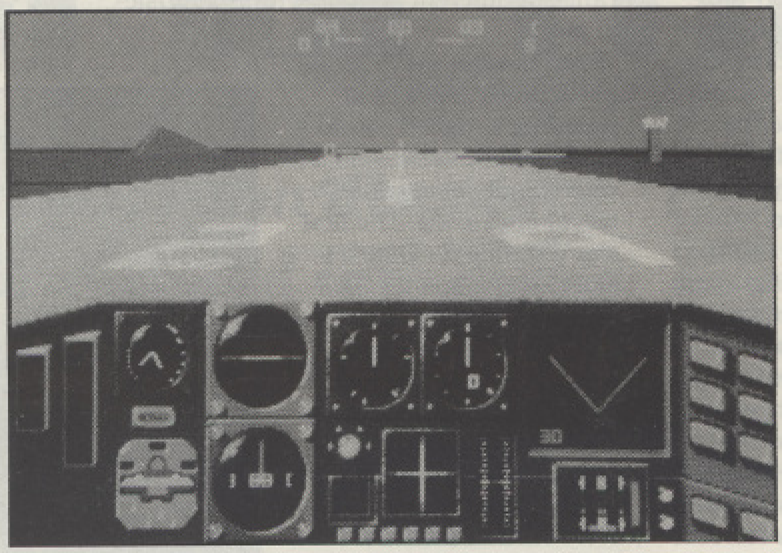
The music is built up across four independent tracks, giving access to four different simultaneous sounds. It's constructed from command steps, each of which can trigger one note using a selected sound, optionally with vibrato, portamento, or arpeggio effects applied. Up to 64 steps are grouped together into a pattern, and patterns may be strung together to make up a complete musical piece. They may also be reused as required where repeats are needed. When complete the whole piece can be saved to disk as a module file. Playback can be through the TV/monitor; or better, direct to your hi-fi system; or better still, to your hi-fi through the outputs of a Replay, Prosound Designer, or MV-16 sampler cartridge if you have one.

Overall, NoiseTracker is a fantastic program and unbelievably good value at only £2.95 from Page 6. The only thing missing is MIDI, to allow you to play samples and/or record into the sequencer direct from a MIDI keyboard instead of the ST's keyboard. These are features currently only found on commercial packages such as Quartet, Master Sound, and the Replay packages, which I'll be looking at next time.

That's all for the introduction and a taste of what's cheaply available. Next issue I'll continue the theme looking at commercial packages including Microdeal's new Stereo Playback cartridge, which brings superb stereo sound to ALL models of the ST. Until then, get yourself a copy of NoiseTracker and start experimenting with this fascinating way of making music with your ST.

MiG-29 FULCRUM

At 3:00pm on 30th August 1988 a small piece of aviation history was made when two MiG-29's (NATO codename Fulcrum) landed at Farnborough, the first Soviet fighters to land in Britain. Their thrilling demonstration flights were the hit of the Farnborough Air Show and sent the aviation world wild with excitement. Since then the aircraft seems to have become an aeronautical "status symbol", and was inevitably destined to star in computer games and simulations. My only surprise is that it's taken so long for the first simulator to appear, and honours for this go to Domark's MiG-29 Fulcrum.



EXTRA GOODIES!

The program is supplied in an enormous colourful box containing one single sided program disk; a small ringbound instruction manual; a poster showing a detailed cutaway drawing of the MiG-29; and a superb 128 page book packed with full colour photographs and details about the MiG-29. This alone would probably cost about £10 if bought separately.

The program itself follows the usual combat simulator format, but overall seems simpler than many other programs of this genre. There's a training mission section in which you learn to fly the aircraft and to use its weapons systems on the practice firing ranges. The weapons include cannons; unguided rockets; and Aphid air-to-air and Kerry air-to-ground guided missiles. With training completed you can try the combat missions, of which there are only five. These have you snooping on an American submarine trapped in ice off the Siberian coast; teaching the Chinese air force a lesson or two in dogfighting above the Great Wall of China; shooting up oil rigs and refineries in the Middle East(!); tracking terrorists inside the USSR and destroying their base; and finally taking out a nuclear facility, again in the Middle East.

Title:	**MIG-29 FULCRUM**
Publisher:	**Domark**
Price:	**£34.95**
Reviewer:	**John S Davison**

SIMPLIFIED PANEL

The main screen shows the usual instrument panel and forward outside view. I was disappointed by the panel, as the instruments are much simplified representations of the real thing. Mostly they're just blank dials with needles, with no attempt made to put any sort of numeric scales on them. They all work as you'd expect, but there's no way of accurately quantifying what they're telling you! They're really only intended as backup instruments, for use when your Head Up Display is out of action. The HUD normally displays a direct digital readout of essential flight data such as heading, height, and airspeed - except when it's been shot away by enemy fire, of course! The navigation system has been simplified too - all mission waypoints are preset, so you can't enter your own.

I was also a little disappointed by the outside view, as there's not much in the way of scenery detail - it's mainly clear sky and either land or sea with odd squiggles representing roads or waves and large pyramid shapes representing mountains on land or islands in the sea. Potential targets are quite well done though, these being fairly realistic 3D graphic creations. They include that submarine; ships at sea (which deal a nasty line in anti-aircraft missiles!); oil installations; sundry buildings; and road vehicles. Enemy aircraft are well portrayed too - and they manoeuvre quite realistically.

You can also view all around you in 45 degree increments, and this, coupled with the pilot's helmet mounted weapon aiming display, means you can lock a missile onto its target without having to fly the aircraft directly towards it. Sneaky! Other viewing options include the "missile's eye view"; outside views of the aircraft; and views from the viewpoint of the enemy and your home base control tower.

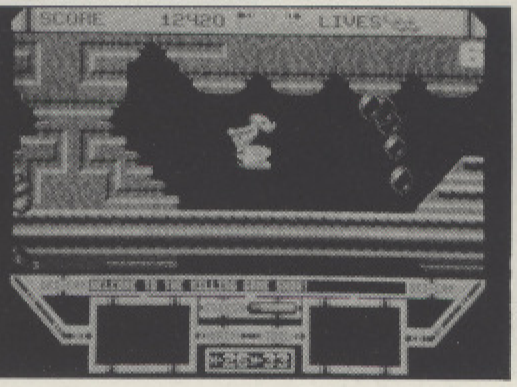
CONTROLS

Primary flight control can be via joystick, mouse, or keyboard and surprisingly I found I preferred using the mouse. The aircraft handles very well - not quite in the ProFlight (reviewed in last issue) or Flight Simulator II class, but it's close. The author has obviously tried to keep the display frame rate high for realism (by using sparse graphics?) and has also put a lot of work into the flight dynamics aspect of the simulation - and it shows! The aircraft is very manoeuvrable, and you can even perform the famous "tail slide" which stunned the crowds at Farnborough in 1988! Landings cause most grief - it took me several attempts to learn how land in one piece on the runway. The key is remembering that the aircraft isn't necessarily flying in the same direction the nose is pointing!

BELIEVABLE

My initial reaction to MiG-29 was one of disappointment, mainly because of the "simplified" aspects mentioned earlier, however after flying it for a while and getting into the missions I found I really enjoyed using it! The main reason, as ever, is that it handles in a believable manner, so the graphics become of secondary importance. And the missions, although not difficult to complete, do seem to have an addictive quality. Overall, I'd rate the program as more of a "beginner's" flight simulator - it's not bad, but experienced flightsim fans would probably expect more for their money.

THE KILLING GAME SHOW



A Psygnosis game! My reaction to any of this company's wares are always positive. Psygnosis try to bring something a little original into their games, even if it means creating plots from the worst of pulp science fiction.

The premise of the Game Show is to show criminals being brought to justice, in the full sight of jaded gameshow audiences of the 21st Century. Convicted criminals are offered the chance to undergo quite a severe bionic operation to become the half human, half machine that plays the Killing Game. All the contestant has to do is climb through a maze inhabited by unpleasant objects and find the exit before a liquid that dissolves organic matter reaches overflows.

A very simple set of circumstances for the sort of high tec platform game that Psygnosis are becoming synonymous with. There are of course handy places hiding extra firepower or weapons to aid the contestant on his adventure. One nice twist is that once the contestant has lost an action replay takes place allowing the player to pick up the action at any place to circumvent the problem that caused his demise.

The game is a perfect vehicle for those talents perfected by Psygnosis, good and smooth flowing graphics, pacey and atmospheric music and a strong playability of difficulty levels. Perhaps the most refreshing thing about them is of course the are not Arcade game copies, they are proper computer games written for a computer first.

The packaging and strong artwork available on both the box and the loading screens prove further the time the company put in marketing a worthwhile product. It is this attitude of love and care that comes through in this game and excuses a somewhat gruesome idea explored in the Running Man creating a piece of software that is an example of good science fiction writing.

Needless to say I enjoyed this game, and found enough challenge in it to keep practising the difficult parts and neither the cat who went unfed for twelve hours or the joystick which is again a melted mess will forgive me. I can recommend this game for those who need a thoughtful challenge.

FACTS

Title:	**THE KILLING GAME SHOW**
Publisher:	**Psygnosis**
Price:	**£25.99**
Reviewer:	**Damon Howarth**

SIGHT & SOUND

All the best of Psygnosis, what more can be said?

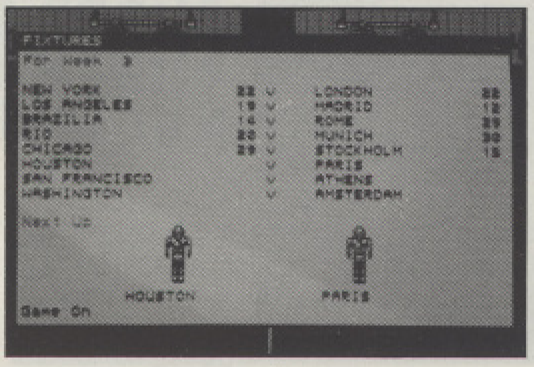
GAMEPLAY

Smooth, fast and interesting - no complaints at all

VERDICT

Another good value Psygnosis game

PROSOCCER 2190



FACTS

Title:	**PROSOCCER 2190**
Publisher:	**Vulture Publishing**
Price:	**£19.99**
Reviewer:	**Damon Howarth**

SIGHT & SOUND

Spot fx are reasonable, sprites jerky and spindly, generally unsatisfactory

GAMEPLAY

Poor control and a tendency to hang at critical points

VERDICT

A game that will find it difficult to compete with the many other soccer simulations available

Pro Soccer is set, as the title suggests, in the future and entails indoor 11-a-side soccer being played to rules that relate to five-a-side football and a little netball. The action is supposedly non-stop barring time outs for substitutions and the game has promise when viewed from its packaging.

It is possible to play with one or two players and the software conveniently allows team colours to change to avoid colour clashes. The game takes all its timing from American football but without the breaks between downs. It is possible to play the game in any of player, player/manager or just management modes allowing the operator to either kick and score, make tactical substitutions or both.

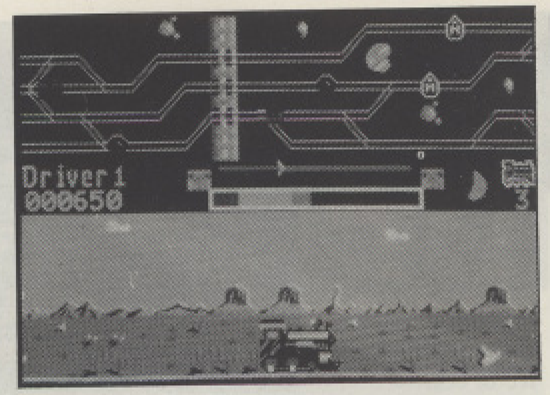
The game shows promise but somehow with its somewhat basic graphic content and very jerky movements the game failed to show any real originality or entertainment value. It was mechanically proficient and did what it was meant to but lacked any of the verve and vigour of other soccer games on the market. Player control felt sluggish and somewhat heavy handed, and although the spindly sprites are a good size they lack a certain animistic touch that allows a player to identify with the team.

Sound effects are basic and the ball control and kicking routines belong to the early 8-bit days and the lack of vision up the pitch make any but the shortest passes voyages into the unknown.

While the game gives options to change the team members and even the style of play, touching function keys in my version caused the game to hang in a disastrous manner. Furthermore the game will store keypresses and thus it is possible to see all a teams time outs disappear owing to excess tapping of the space bar to start the game.

On the whole I was not impressed by this game, it is a good idea that has fallen short in its execution. A sort of Fourth Division game that could have been a First Division challenger to Kick Off had a little more care been taken in preparation and play testing. Try to play it in the shop first and make your own judgement.

LOCOMOTION



Old West trains adorn the cover of this particular budget offering and not surprisingly the game is about trains. The player is in control of the mail train that links the towns of the West and it is your job to ensure the train gets through and thwarts the 'baddies' evil intentions.

The game is joystick controlled and involves split screen play. Half of the screen shows an Old West steam train chugging along the track in search of mail sacks and water towers (to repair damage it suffers on the way). The top of the screen gives a wider range view of obstacles, potential route changes and the position of the trains and planes that attempt to stop you.

The train can shoot down the WWI flying machines with its smoke stack but has to find ways to avoid anything on the track that might run into it. As the game progresses becoming more and more difficult the obstacles become more varied. For instance level crossings appear which do not shield your train from Kamikaze truck drivers and the balloons and bombs that attack from above. The game is very colourful with good use of sprites although there are on occasions some problems with sprites disappearing and then coming back out of nowhere.

The game feels as if it has been programmed in STOS or something similar, although there are no credits to suggest this. This does not, however, detract from its value as the game has everything I like to find in an arcade game. There is a great deal of originality and thought present here, plenty of colour and a well graded difficulty scale. The only problem that I encountered was a sporadic unwillingness for the train to do what I thought it would.

Other small points that irked me were the way the kept returning to the beginning after a terminal crash wiped out my last life. I would like to have seen deeper levels. I did find the bonus screens most enjoyable and shooting flying planes with a sitting duck train proves quite therapeutic.

In conclusion this game offers really good value and the prospect of enjoyment for low cost it really is worth the trial, it can become most addictive.

FACTS

Title: **LOCOMOTION**
Publisher: **Byte Back**
Price: **£6.99p**
Reviewer: **Damon Howarth**

SIGHT & SOUND

The graphics are generally smooth and cheerful and although some of the sound is a little rough the whole package is generally sound

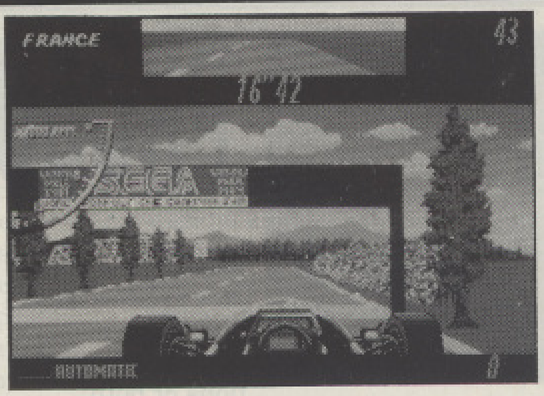
GAMEPLAY

Well graded difficulty levels with a sense of humour evident from the programmer

VERDICT

A little different, worth finding and adding to your budget collection

SUPER MONACO G.P.



FACTS

Title: **SUPER MONACO G. P.**
Publisher: **U.S. GOLD (SEGA)**
Price: **£25.53**
Reviewer: **Damon Howarth**

SIGHT & SOUND

Good colours and loud music. A strong arcade conversion

GAMEPLAY

Fast and furious, needful of some practice to progress past the first practice

VERDICT

Nothing to make this stand out from the competition, if you are a race game addict then this will give you your "fix"

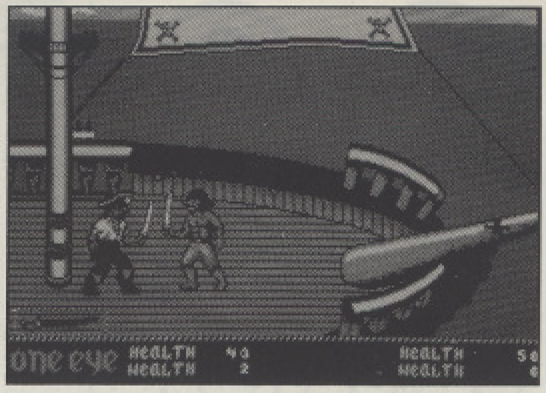
The sounds of stirring engines and the acrid smell of racing fuel are conjured up in this car racing game which, although it gives some extra touches, is similar to the old classic Pole Position.

The player is presented with the options of choosing between three forms of gear shift, automatic, 4 and 7 gear which equate to difficulty levels as well as control methods. With this vehicle it is the contestants aim to finish progressively higher in the various races of a shortened Grand Prix season. To qualify for a race the qualification time must be achieved on the practice lap and to qualify for the next race the player must finish progressively higher up the order. Ranging from 7th or better through to at least 3rd. No Nigel Mansell blow outs allowed in this game!

The game allows for control from mouse joystick and nominally the keyboard (although this is only acknowledged on the Amiga version). Graphically the game is very strong giving good views of both the track and the cockpit of the car with filled-in 3D perspective more in the Outrun vein than the stripey borders of Pole Position. The courses seem to be a fairly good simulation of the real thing although when compared to some pure racing games such as the Ferrari simulator it feels very one dimensional and small in scope. Perhaps it is because the game was originally conceived as a game for the arcades that the difference between joystick bashing and computer simulating becomes apparent. As with Pole Position and its ilk this is at best a very good game whereas some of the better 16-bit racing games are in fact quasi-simulations. This is where the end user must make their choice. As a game this software does a creditable job at entertaining but as a thought provoking grand Prix game it fails.

The game also suffers, as does much of US Gold's arcade merchandise, by having a curt multi-language instruction sheet. I am always suspicious of games whose manuals spend more writing on the different variants of loading a game into one of many machines than on the game itself.

SKULL AND CROSSBONES



Yo Ho Ho! A swashbuckling game fresh from the briny me hearties! This game is in the hack and slash mode associated with such tasteful and demure pieces as Barbarian and Barbarian 2, except this one is in bright colours, has very cartoonlike characters and an adventurous storyline. Furthermore this can be construed as a team game since two players may cooperate to bring about the enemies downfall.

Briefly the plot consists of the Pirates One Eye and Red Dog having their ill gotten booty transported by some anonymous evil wizard to alternate parts. It is their mission, and they chose to accept it, to recover the loot by fighting their way across a myriad of colourful screens. The gameplay involved in this is pretty tricky, allowing for a great deal of joystick waggling to less than normal effect. On the other hand the various action stations planted about the screens allow the pirate(s) to perform the athletic tricks of Douglas Fairbanks and Burt Lancaster with impunity. The game begins fairly easily although once the first proper encounter is found the fighting hots up. There seem to be very few alternate strokes however, and turning your pirate round can occasionally be trickier than running the enemy through his gizzard!

Graphically the game offers large and friendly sprites which bleed profusely once a serious state of injury is obtained. It is abundantly clear that this game was made to attract large audiences on arcade machines and the translation is very good indeed. The sound is most shanty like and very jolly but I feel that the control system could be more responsive, although the game itself runs quite fast enough. There is a strong element of arcventure and a little more thought than immediately seems apparent is needed. Sadly it is extremely structured and there are no direction choices, scenarios come in strict rote and no save facility is available. There is though some opportunity to replenish lost strength through munching and slurping the goodies discovered in transit and battle.

On the whole a most enjoyable game.

FACTS

Title:	**SKULL AND CROSSBONES**
Publisher:	**Domark**
Price:	**£24.99**
Reviewer:	**Damon Howarth**

SIGHT & SOUND

Very bright and colourful with excellent noises and a rollicking good tune

GAMEPLAY

More than adequate, but sometimes a little haphazard in its controls

VERDICT

Good fun, slightly messy if you don't like gore, a must for hack 'n' slash lovers

HARD DRIVIN' II

FACTS

Title:	**HARD DRIVIN' II**
Publisher:	**Domark (Tengen)**
Price:	**£24.99**
Reviewer:	**Damon Howarth**

SIGHT & SOUND

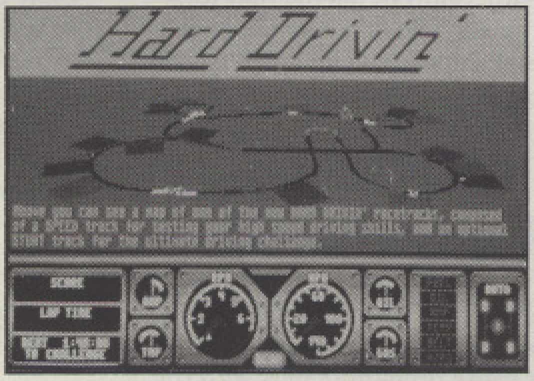
The graphics seem slightly dated now, although the game does not suffer by this. The sound is reasonable and not overly obtrusive

GAMEPLAY

Same wonderful skilful game with a slight touch of extra seasoning, most enjoyable

VERDICT

An enjoyable conversion, much better value than the original, but possibly not original enough if you already have the first one.



Some months ago I had the great joy of reviewing the original Hard Drivin' and very pleased and excited with it I was too. Now the sequel has reared it's greasy revs and I'm back in my stunt car seat. For those who missed the first extravaganza the theory is the same, two tracks to drive your stunt sports car around, including speed trials and the gut wrenching loop de loop are included.

The controls are varied to suit individual tastes and this particular version has two excellent improvements, firstly it is possible to create your own new tracks and secondly it is possible to play other 16-bit computer owners via the Comms port.

The graphics mode is still very blocky and reminiscent of the Elite style of 3D speciality pictures but the game is very playable.

There are very few other differences about the actual game, indeed apart from the fact that traffic seems less careful about you than in the original I have grave suspicions that this is almost the self same program. The Track editor though is most entertaining and thus allows the game a fresh dimension of interest. The manual explains in good detail how to achieve the desired course, indeed one of the most striking things about this software was the surprisingly efficient manual. Certain other arcade conversion specialists could take note of how full instructions add to the games enjoyability.

The sounds in the game remain fairly similar to the original, and do not provide any excitement. Perhaps as techniques for sampling and sound creating improve reviewers become more blase about the normal rumbles of engines and squealing of brakes, still they are there and they do add somewhat to the overall effect.

The course editor is a pleasure to use and allows for either well planned track construction or a suck it and see building method that seems so beloved of the British Motorway construction units. Everything is menu controlled and colour co-ordinated. Sadly only one course may be saved to disk so reconstruction is for keeps as it were.

Peter Hickman's STOS COLUMN

Welcome to another great issue of New Atari User's STOS Column (by the way, did you know that this is the only magazine you can buy off the shelf that supports STOS?). I am writing this a couple of weeks before the Computer Shopper show as I know for a fact that Mandarin will not be there 'cos they are busy moving offices (somewhere nice and big I hear!).

Since you will not get this issue until after the show it's a bit pointless talking about it, but in case you were there did you spot the guy with the pony tail talking to a wizened old lady and a fellow who looks as if he were filming a werewolf movie? One of those three is me, but which one? ..... In two months time tune in for the next exciting instalment of "PICTURES FROM THE SHOPPER SHOW" where you can find out my true identity.

Enough fun, STOS 3D is almost complete and should be finished enough for a review for the next issue (then again .....), STOS Vidi is complete (thanks to my mate Terry Mancey who co-wrote and designed it with me) but it's future is undecided at the moment and finally there is a STOS STE extension available soon (I haven't seen it yet but Aaron Fothergill of the STOS club tells me it lets you access the Blitter, new joystick ports, new sound sample control and loadsa other bits and pieces).

COMING SOON ..

As the traditional summer slump for the computer industry approaches the time for software development begins. Fun School 4 is in the early stages of production and should be out for the ST in September'ish, I have seen some early previews and it looks pretty good. Another package that is being lined up for release soon is called Kids Carnival, release dates are uncertain (it might make it out before the summer) and this one looks even better than FS4 (which is quite a feat!). Sources tell me that Kids Carnival is the start of a new range of educational software, I can't wait to find out more!

A REAL CRACKER!

We have one real program now, but wow what a program it is! Have you ever looked at those brilliant demos with the 3D shapes made out of different coloured balls? I have and always wondered how they could calculate the positions of the balls that quickly, but then the secret was revealed - THEY CHEAT! If you precalculate the position of the balls for every time they will be plotted you can store the values in memory and get away with murder!

The program we have here has been written by STOS wizz kid Richard Gale (hi Richard!). It comes in 3 bits and you really need a freshly formatted disk to store the stuff on (you don't want to type it in and find out there is no way to save it!). The object that will be drawn is a nice big Helicopter which rotates and spins it's rotorblades.

First you must type in that nice long sprite bank (TABLE 1) into the INPDATA program stored on your STOS accessories disk (full instructions for using this and a replacement for OUTDATA have been published in a previous issue). Save the sprite bank as a file called "HELISP.MBK".

Okay, done that and saved it? Now type in PROGRAM 1 and wait for a while, it will generate 40 frames of the helicopter and will store the values in bank number 10. After it is finished the program will save out the bank as HELIBNK.MBK.

I won't do a breakdown of the program 'cos it's a pretty complicated thingy (I'll try to do a nice simple one for the next issue so that I can reveal how to create your own shapes).

Okay now type in PROGRAM 3, which is the program which will display the finished object. It loads the two banks we have just created so remember to make sure they are on the same disk. Run it and be amazed! Okay so it runs a little bit slowly, but if you own a copy of the STOS Compiler it really zips along.

SAVING SPACE

Well, as you may have noticed the programs are slightly bigger this time so that's all for this issue.

If you want to find out more about the STOS club write to

Aaron Fothergill
1 LOWER MOOR
WHIDDEN VALLEY
BARNSTAPLE
NORTH DEVON
EX32 8NW

or phone
0271 23544

Remember to tell him where you heard about the STOS club!

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10 rem ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
20 rem ^^                       HELI DEMO                     ^^
30 rem ^^                          BY                         ^^
40 rem ^^                     RICHARD GALE                    ^^
50 rem ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
60 mode 0 : key off : curs off : flash off : hide on
70 X=hunt(start(1) to start(1)+length(1),"PALT")+4 : for I=0 to 15 : colour
I,deek(X+I*2) : next I
80 DIST=100 : ROTX=0 : ROTY=0 : ROTZ=0 : TX=0 : TY=0 : TZ=0
90 read NUM : NUMFRAMES=80
100 dim X(NUM),Y(NUM),Z(NUM),S(NUM),Z#(NUM),XP(NUM),YP(NUM),SPRT(NUM)
110 erase 10 : reserve as data 10,(NUMFRAMES+1)*4*NUM
120 for I=1 to NUM : read X,Y,Z,S(I) : X(I)=X*6 : Y(I)=Y*6 : Z(I)=Z*6 : next I
130 gosub 580 : gosub 590 : gosub 600
140  :
150 logic=back : FRAME=-1
160 rem """""""""""""""""""""" Animation """"""""""""""""""""""
170 for ANGLE=0 to 44 step 10
180 ROTY=0 : gosub 590 : for I=1 to 50 : PNT=I : gosub 500 : next I
190 ROTY=ANGLE*4 : gosub 590 : for I=51 to 58 : PNT=I : gosub 500 : next I
200 gosub 400 : gosub 310
210 next ANGLE
220 for ANGLE=0 to 359 step 10
230 ROTY=ANGLE : gosub 590 : for I=1 to 50 : PNT=I : gosub 500 : next I
240 ROTY=ANGLE*4 : gosub 590 : for I=51 to 58 : PNT=I : gosub 500 : next I
250 gosub 400 : gosub 310
260 next ANGLE
270 save "HELIBNK.MBK",10
280 default
290 stop
300 rem """""""""""""""""""""" View and Store """"""""""""""""""""""
310 inc FRAME : locate 0,0 : print FRAME : if FRAME>NUMFRAMES then bell : print
"Out of frames" : end
320 for I=NUM to 1 step-1
330 X=XP(I) : Y=YP(I) : SPRT=SPRT(I) : MEM=start(10)+FRAME*(NUM*4)+I*4
340 doke MEM,X : poke MEM+2,Y : poke MEM+3,SPRT
350 sprite 1,X,Y,SPRT : update
360 next I : sprite off 1
370 screen swap : wait vbl : cls back
380 return
390 rem """""""""""""""""""""" Depth sort """"""""""""""""""""""
400 SI=NUM : repeat
410 if SI<1 then goto 470
420 SI=SI/2 : repeat : FLAG=false
430 for I=1 to NUM-SI
440 if (Z#(I)>Z#(I+SI)) and (Z#(I)<>Z#(I+SI) or YP(I)>YP(I+SI)) then FLAG=true :
swap Z#(I+SI),Z#(I) : swap XP(I+SI),XP(I) : swap YP(I+SI),YP(I) : swap
SPRT(I+SI),SPRT(I)
450 next I
460 until FLAG=false
470 until SI<1
480 return
490 rem """""""""""""""""""" Calc. rotation and perspective """"""""""""""""""""
500 XA=X(PNT) : YA=Y(PNT) : ZA=Z(PNT) : SPRT=S(PNT)
510 XC#=XA*CZ#-YA*SZ# : YC#=XA*SZ#+YA*CZ# : ZC#=ZA : rem " Z "
520 XD#=XC#*CY#-ZC#*SY# : YD#=YC# : ZD#=XC#*SY#+ZC#*CY# : rem " Y "
530 XE#=XD# : YE#=YD#*CX#+ZD#*SX# : ZE#=ZD#*CX#-YD#*SX# : rem " X "
540 XA#=XE#+TX : YA#=YE#+TY : ZA#=ZE#+TZ : rem " Transform "
550 DD#=ZA#+DIST : XA#=XA#*DIST/DD# : YA#=YA#*DIST/DD# : ZA#=DD# : rem "
Perspective "
560 Z#(PNT)=ZA# : XP(PNT)=XA#+160 : YP(PNT)=100-YA# : SPRT(PNT)=SPRT
570 return
580 CX#=cos(rad(ROTX)) : SX#=sin(rad(ROTX)) : return : rem " X angle "
590 CY#=cos(rad(ROTY)) : SY#=sin(rad(ROTY)) : return : rem " Y angle "
600 CZ#=cos(rad(ROTZ)) : SZ#=sin(rad(ROTZ)) : return : rem " Z angle "
610 rem """""""""""""""""""""" 3D Helicopter data """"""""""""""""""""""
```

Left - Listing 1 which continues with the second column overleaf - don't forget to type the rest in!

Listing 2 to be typed in after the table overleaf has been entered and Listing 1 above has been run

```
10 load "HELIBNK.MBK",10
20 load "HELISP.MBK"
30 key off : curs off : flash off : hide on : update off : auto back off : mode
0
40 X=hunt(start(1) to start(1)+length(1),"PALT")+4 : for I=0 to 15 : colour
I,deek(X+I*2) : next I
50 logic=back : NUM=58 : Y=-148
60 repeat : FRAME=(FRAME+1) mod 5 : gosub 110 : Y=Y+4 : until Y>=0
70 repeat : FRAME=(FRAME+1) mod 5 : gosub 110 : until FRAME=4
80 for FRAME=0 to 4 : gosub 110 : next FRAME
90 for FRAME=5 to 40 : gosub 110 : next FRAME
100 goto 90
110 for I=NUM to 1 step-1 : MEM=start(10)+FRAME*NUM*4+I*4 : sprite
1,deek(MEM),peek(MEM+2)+Y,peek(MEM+3) : update : next I : sprite off 1
120 screen swap : wait vbl : cls back : return
```

```
ORIGINAL FILENAME : HELISP.MBK
BANK NUMBER :  1
BANK LENGTH :  1536

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: Adrs :                          Datas                               : Check :
--------------------------------------------------------------------------------
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: 0010 : 0009 *0006  006C  010E *0004  00F8  010E *0004 : 30397 :
: 0028 : 0184  010E *0004  0210  010E *0004  029C  010E : 20962 :
: 003C :*0004  0328  010E *0004  03B4  010E *0004  0440 : 30D44 :
: 0052 : 010E *0004  04CC  010E  0000  5041  4C54  0000 : 1A381 :
: 0064 : 0777  0555  0333  0111  0540  0430  0320  0227 : 01FC7 :
: 0074 : 0115  0003  0770  0750  0730  0700  0707  F87F : 11D8E :
: 0084 : E01F  C00F  8007  8007  0003  0003  0003  0003 : 2A048 :
: 0094 : 8007  8007  C00F  E01F  F87F  0000  0780  0000 : 3A03B :
: 00A4 : 0780  1E00  01E0  0000  1FE0  2320  00D0  0000 : 06B30 :
: 00B4 : 3FF0  41B0  0848  0000  77F8  4990  1468  0000 : 15FD8 :
: 00C4 : 63F8  4198  8864  0000  F7FC  61A8  B044  0000 : 307DC :
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: 013C : 00E0  0000  1FE0  21A0  0850  0000  37F0  2980 : 0AC20 :
: 014C : 1470  0000  23F0  0190  4868  0000  77F8  21A0 : 11BF0 :
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: 02BA : 8007  0003  0003  0003  0003  8007  8007  C00F : 24030 :
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: 02EC : 0000  1DF0  23F0  4008  0000  49F8  77F8  8004 : 1C3DC :
: 02FC : 0000  61F8  7FF8  8004  0000  7FF8  7FF8  8004 : 2E1E8 :
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: 0390 : 0000  C0D4  FFEC  FFFC  0000  E1A4  FFDC  FFFC : 5A238 :
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: 04F4 : F03F  F87F *FF06 *0018  0780  0780  0780  0000 : 4FE5C :
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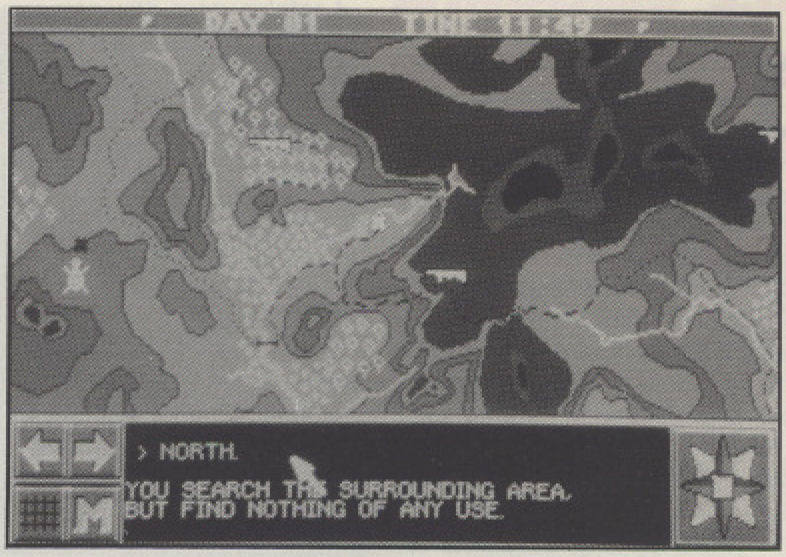
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690 data-3,-3,3,3
700 data-1,-3,3,3
710 data-4,-2,2,1
720 data-2,-2,2,1
730 data 0,-2,2,1
740 data-6,-1,2,2
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800 data 0,2,2,1
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830 data-2,-2,0,1
840 data 0,-2,0,1
850 data-6,-1,0,2
860 data-4,0,0,5
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880 data-0,0,0,1
890 data 2,0,0,1
900 data 4,0,0,2
910 data 5,0,0,3
920 data 6,0,0,4
930 data-2,2,0,5
940 data 0,2,0,1
950  :
960 data-6,-4,-4,1
970 data-4,-4,-4,1
980 data-2,-4,-4,1
990 data 0,-4,-4,1
1000 data 2,-4,-4,2
1010 data 3,-4,-4,3
1020 data-3,-3,-3,3
1030 data-1,-3,-3,3
1040 data-4,-2,-2,1
1050 data-2,-2,-2,1
1060 data 0,-2,-2,1
1070 data-6,-1,-2,2
1080 data-4,0,-2,5
1090 data-2,2,-2,5
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1110 data 0,0,-2,1
1120 data 2,0,-2,1
1130 data 0,2,-2,1
1140  :
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1160 data-6,4,0,9
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1180 data-3,4,0,7
1190 data-1,4,0,6
1200 data 1,4,0,6
1210 data 3,4,0,7
1220 data 5,4,0,8
1230 data 6,4,0,9
```

LOST PATROL

It is June 7th 1966; A US helicopter returning troops from a period of R 'n' R in Saigon crashes in the remote central highlands of Vietnam. The seven survivors of the crash must trek across 57 miles of enemy infested terrain in order to reach the nearest US base at Do Hoc. You are the leader of this team and you must organise the team so that you can reach the base. A gruelling test for the best of teams, but you have the added disadvantage of having a very limited supply of ammunition and food.

Lost Patrol is a war strategy/arcade game which is controlled mainly from a map of the area. You must guide your small team through the jungle and keep the morale high. At various points you will find villages where you can speak with the inhabitants, sometimes they will prove to be friendly, sometimes not. On many occasions on your journey you will be either ambushed or pinned down by a large group of enemy soldiers. On these occasions the action swaps to an arcade sequence where you can shoot the offending V.C.'s or lob hand grenades at them. At other times, men who you have sent out to 'scout' the area will come across lone soldiers and must engage them in hand to hand combat. Here the action again switches to an arcade 'karate' style game where you must beat the living daylights out of the offending V.C.

The secret of success at Lost Patrol is choosing the right man for the job. When dealing with a sniper, you must leave the shooting to your expert marksman. If possible, you should let your resident black belt at akido handle the lone soldiers. It is all a matter of personnel management.



Morale is the other major factor to be considered. I have now been shot, stabbed and blown up multitudes of times, by my own men, because the morale level was so low. Supplies of food and sleep are two very important factors when considering the well being of six other men. If you can't judge their feelings correctly then you will have to deal with mutiny in the ranks.

Graphically the game is fairly impressive. There are some very well drawn scenes of depressed looking American soldiers trudging through the Vietnamese countryside. There are also scenes of villages and paddy fields. As well as these 'stills' there are a number of animated digitized sequences for you to watch, such as your group wearily wading through the swamps. The arcade scenes are not as stunning in their representation however. The scenes here are not particularly well drawn, nor are they animated well. One 'bad point' of note is the hand to hand combat sequence, where the animation is so bad that it is very difficult to control your character. In terms of sound, the game does little to inspire the imagination. The obligatory sampled machine gun fire is backed by some dismal music which, thankfully, can be switched off.



I am not the greatest fan of war games, especially games which try to gain entertainment value out of something as serious as the Vietnam war was. Also, the current state of world affairs does not make the prospect of playing a game based on a real war particularly desirable. Lost Patrol is a very violent game, and whilst war is all about violence, I don't really see why we have to have games to glorify it. Whether Ocean are saying "war is bad - here see for yourself" or not I don't know. However Lost Patrol is not at all my cup of tea. Despite my personal feelings however about war games, Lost Patrol, viewed as simply 'a piece of software' is fairly good, and very adventurous of Ocean as they are not noted for strategy games.

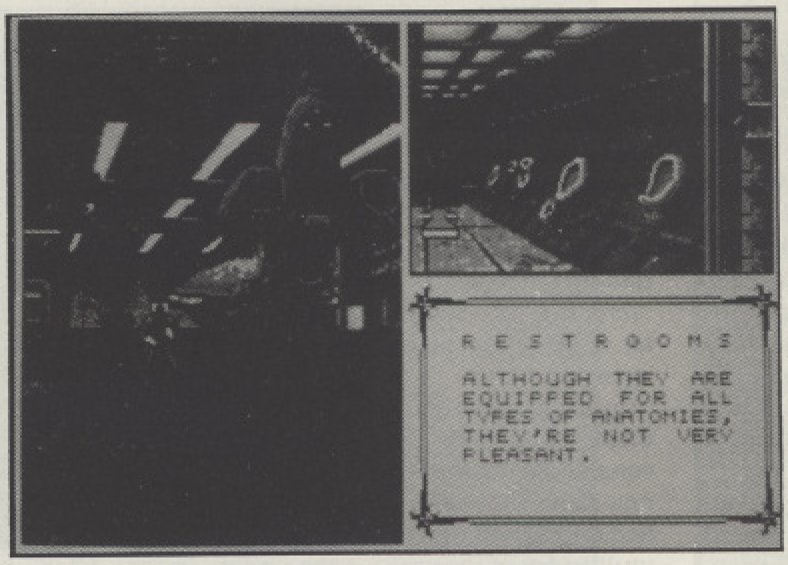
Lost Patrol is a very 'big' game, it comes on three disks and there is obviously a great deal of code. The action is varied and as a piece of 'strategy software' I can do nothing but praise it. It does manage to bring home some of the problems of command, especially when your men turn against you!!!

My overall conclusion about Lost Patrol has taken a great deal of thought. Whilst not 'approving' (as it were) of the theme of the game, I can appreciate that as an achievement of programming, it is very commendable. The game is varied and complex, and I can well imagine that any fans of this style of game will take to it very well. It is easy to control and user friendly, and the graphics and sound are far above average. In terms of presentation, the only criticism I could make is that the instruction book is dreadful!

Title:	**LOST PATROL**
Publisher:	**Ocean**
Price:	**£19.99**
Reviewer:	**John Davison jnr**

- ***SIGHT & SOUND*** *- The graphics are mainly very good, although let down in places. The music is awful and the sound F/X are reasonable*
- ***GAMEPLAY*** *- A very challenging game which will take a great deal of thought to complete*
- ***VERDICT*** *- Commendable step away from the mainstream arcade scene by Ocean*

B.A.T.



It is the 22nd Century, you are an agent of B.A.T. - the Bureau of Astral Troubleshooters! Your mission is to eliminate the evil Vrangor who is threatening to take over the planet Selenia with bacterial warheads, gain control of the vital energy matter, Khegol, which makes space travel possible, and make himself the master of the Galaxy!

Your first problem is that you can't understand half of the inhabitants - never fear - the right mouse button gives you access to B.O.B. - a Bidirectional Organic Bioputer implanted in your arm. You could manually select a particular language, but a few minutes spent working out how to program B.O.B. to not only provide automatic translation, but also warnings of when you are hungry, thirsty, tired, ill or injured will save you a lot of time later.

B.A.T. is completely mouse-driven. Normally the screen shows a superb view of your current location and the mouse icon dynamically changes to indicate exits, machines, people willing to converse with you, people willing to sell you things and so on. Actions such as conversing, buying, eating, checking your inventory are done by pointing at pop-up menus.

If you select a machine then the mouse is used to drive the machine in an appropriate manner, e.g. you can fly a Drag across the desert - this is a flight simulator where the mouse is used as a joystick. (I found the controls a little sluggish - and the lack of a directional indicator makes navigation nigh on impossible!) If you go on the dance floor you have to click alternately on left and right at high speed to impress your dancing partner!

Once you have explored Terrapolis you could start by playing a primitive arcade machine in the red light district - a little care and patience will give you enough money to buy force fields, weapons, and ammunition so that you can survive against the robot assassins who are out to thwart your mission! If one finds you the screen flips to a shoot-em-up with no warning - you have a couple of seconds to click on your force field and your weapon, aim at your (stationary) enemy, then start clicking as fast as you can in order to destroy him before he takes down your force fields.

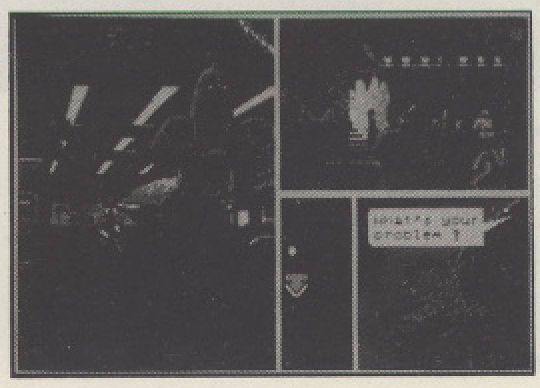
The people of Selenia are represented in different ways. There are people in the pictures with whom you can have very limited conversations, but most, including all the animated characters who wander across the screen are just scenery. There are at least two very important people whom you have to find and make friends with - you don't get very many clues as to where and when to find them - but you will easily recognise them as they pop up at the side of the screen. But the most important ones are the wandering inhabitants of the city who do NOT appear on the screen. Instead your mouse icon will change to an "interpellation"(!) symbol when one is nearby - click quickly on the right mouse button and you get a set of menus so that you can talk, buy, sell, steal, attack, etc.

Unfortunately all Glokmups look alike, as do all Skunks, Kradokids and Stickrobs, so you never know if you are talking to a new one or wasting your time repeating the conversation you had 10 seconds ago! These guys are critically important as they have some of the items you need to progress - e.g. a Xifo Club Card, a Permit. Unfortunately, it can be extremely hard to find these and if you don't do it early enough in the game then the idiots may have lost them or had them stolen from them - your only option then is to start the whole game from the beginning again!

Eventually you will reach the underground tunnels - these can be explored using a truck - you can click left, right, forward or backward. There are three problems down here - one is the number of guards - make sure you are well armed! Second is the fact that the controls don't at first appear to work at all - the secret is to use the RIGHT mouse button! Third, turning a corner is VERY confusing. If you turn left into an open corridor then you will turn 90 degrees to the left. But if you turn left into a doorway you will be turned through 90 degrees to the RIGHT and end up facing the door which leads back to the corridor you just came from! AND, you can't tell whether an opening is a doorway or a corridor until you try it! (I think French minds must work differently from ours!)

The sound is superb - a variety of loud tracks which are played through an MV16 cartridge which comes with the game. You need to either plug in some headphones (alas, there is no volume control and it is LOUD!) or connect it to your hi-fi. You DO need to have the sound on (albeit with the music off) in order to hear people stealing from you!

- ***SIGHT & SOUND*** *- superb pictures, great soundtrack (as long as you can reach your hi-fi)*
- ***GAMEPLAY*** *- lots of variety, but very easy to get stuck*
- ***VERDICT*** *- Could have been great, I think they tried to put too much in and failed to maintain the quality throughout*



Title:	**B.A.T.**
Publisher:	**UBIsoft**
Price:	**£29.99**
Reviewer:	**John Sweeney**



CITIZEN PRINTERS

Silica presents some great offers on the award winning range of high quality dot matrix printers from Citizen. Each Citizen printer is built in the UK to exacting standards, ensuring superb reliability and a very high quality of output. Our confidence in the quality of Citizen printers is such that we are pleased to offer a unique two year guarantee with every printer. Plus, if you purchase your Citizen printer from us, we will give you a Silica Printer Starter Kit (worth £29.95), *FREE OF CHARGE!*

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Next Day - Anywhere in the UK mainland

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Free Windows 3.0 driver - In the Silica Starter Kit.

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Technical support helpline open during office hours.

MADE IN THE UK
Citizen printers are manufactured to high standards.

144 CPS DRAFT 9 PIN



CITIZEN 120D+

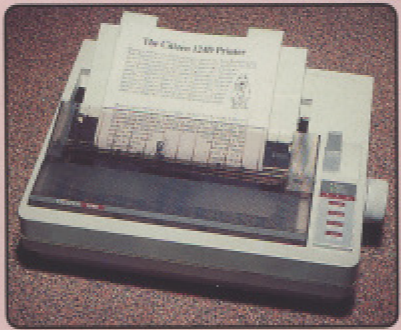
The Citizen 120D+ is one of the UK's best selling printers. It has a stylish appearance and excellent features and performance for such an inexpensive printer. The 120D+ is available with either a serial or parallel interface and is an ideal first printer.

- *9-pin Printhead*
- *Print Speed 144cps Draft*
- *30cps NLQ*
- *Epson & IBM Graphics Emulation*
- *Pull Tractor & Bottom Feed*
- *Superior Graphics - 240x216dpi*
- *FREE Starter Kit*

RRP £233.83
STARTER KIT £29.95
TOTAL RRP: £263.78
SAVING: £112.20
SILICA PRICE: £151.58

£129 +VAT = £151.58

144 CPS DRAFT 24 PIN



CITIZEN 124D

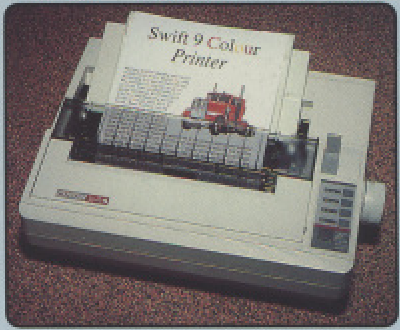
The award winning Citizen 124D brings high quality 24-pin dot matrix printing within every computer users reach. It is the ideal choice where high quality printing is required at a budget price.

- *24-pin Impact Printer*
- *Print Speed 144cps Draft*
- *2 LQ Fonts (48cps)*
- *8K Buffer*
- *Epson, IBM & NEC P6+ Emulation*
- *Advanced Paper Parking*
- *Superior Graphics - 360x360dpi*
- *FREE Starter Kit*

RRP £292.58
STARTER KIT £29.95
TOTAL RRP: £322.53
SAVING: £112.20
SILICA PRICE: £210.33

£179 +VAT = £210.33

192 CPS DRAFT 9 PIN



SWIFT 9 - COLOUR!

The Citizen Swift 9 is perfect for those who require high quality dot matrix black or colour printing at a budget price. The print quality of Swift 9 rivals that of other manufacturer's 24-pin models.

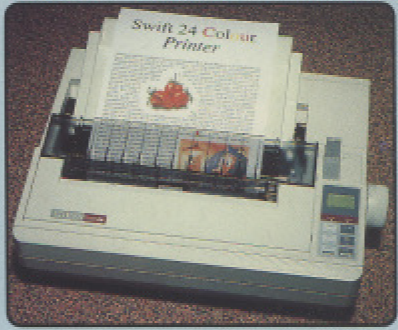
- *9-pin Impact Printer*
- *Print Speed 192cps Draft*
- *3 NLQ Fonts (48cps)*
- *8K Buffer*
- *Epson & IBM Graphics Emulation*
- *Advanced Paper Parking*
- *FREE Starter Kit*
- *FREE Colour Kit*

FREE! COLOUR KIT

RRP £280.83
STARTER KIT £29.95
COLOUR KIT £44.65
TOTAL RRP: £355.43
SAVING: £133.35
SILICA PRICE: £222.08

£189 +VAT = £222.08

192 CPS DRAFT 24 PIN



SWIFT 24 - COLOUR!

The Citizen Swift 24 is one of Europe's best selling printers and has won awards including Printer Of The Year 1990. Its rapid print speed, quality and black or colour options, make it a natural choice.

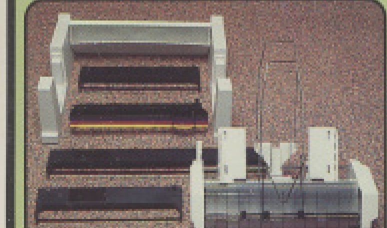
- *24-pin Impact Printer*
- *Print Speed 192cps Draft*
- *4 NLQ Fonts (64cps)*
- *8K Buffer*
- *Epson, IBM & NEC P6+ Emulation*
- *Advanced Paper Parking*
- *FREE Starter Kit*
- *FREE Colour Kit*

FREE! COLOUR KIT

RRP £428.88
STARTER KIT £29.95
COLOUR KIT £44.65
TOTAL RRP: £503.48
SAVING: £199.15
SILICA PRICE: £304.33

£259 +VAT=£304.33

PRINTER ACCESSORIES



SHEET FEEDERS		
PRA 1200	120D	£71.38
PRA 1215	124D/Swift 9/24	£88.70
PRA 1228	124D/Swift 9/24	£42.00
SERIAL INTERFACES		
PRA 1189	120D+	£56.45
PRA 1209	Swift 9/124D	£32.25
PRA 1709	Swift 24	£26.38
PRINTER STAND		
PRA 1242	124D/Swift 9/24	£24.03
ORIGINAL RIBBONS		
RIB 3520	120D/Swift 9 Black	£4.11
RIB 3924	124D/Swift 24 Black	£4.70
RIB 3936	Swift 9/24 Colour	£15.63
COLOUR KITS		
PRA 1236	Swift 9/24	£39.65

All prices include VAT and Free delivery.

FREE! STARTER KIT

Every Citizen printer from Silica, comes complete with the Silica Printer Starter Kit, including everything you need to get up and running with your new printer immediately, FREE OF CHARGE!

- *3½" Dual Format Disk with Amiga & ST Printer Drivers*
- *3½" Disk with Drivers for Microsoft Windows 3*
- *2 Metre Parallel Printer Cable*
- *200 Sheets of High Quality Continuous Paper*
- *200 Continuous Address Labels on Tractor Feed*
- *5 Continuous Envelopes on Tractor Feed*

If you already own a printer, and would like a Silica Printer Starter Kit, you may order one (ref: KIT 5000) for the special Silica price of £24.95 - £5 off RRP!

NORMAL RRP **£29.95**



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- *PAYMENT:* By cash, cheque and all major credit cards.

Before you decide when to buy your new printer, we suggest you think very carefully about WHERE you buy it. Consider what it will be like a few months after you have made your purchase, when you may require additional peripherals or software, or some technical help and advice. And, will the company you buy from contact you with details of new products? At Silica Systems, we ensure that you will have nothing to worry about. Silica Systems is one of the UKs leading independent computer dealers and provides a quality service to users at home, in education and in business throughout the nation. Silica have been established for over 12 years, and have an annual turnover of £13 million. With our unrivalled experience and expertise, we can now claim to meet our customers requirements with an understanding which is second to none. But don't just take our word for it. Complete and return the coupon now, for our latest Free literature on the Citizen printer range and begin to experience the "Silica Systems Service".

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To: Silica Systems, Dept 1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX

PLEASE SEND CITIZEN PRINTER INFORMATION

Mr/Mrs/Ms: .... Initials: .... Surname: ....

Address: ....

....

.... Postcode: ....

Tel (Home): .... Tel (Work): ....

Company Name (if applicable): ....

Which computer(s), if any, do you own? ....

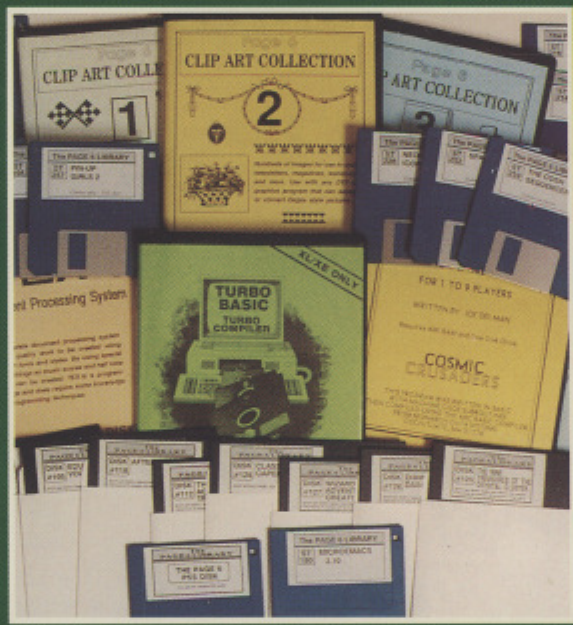
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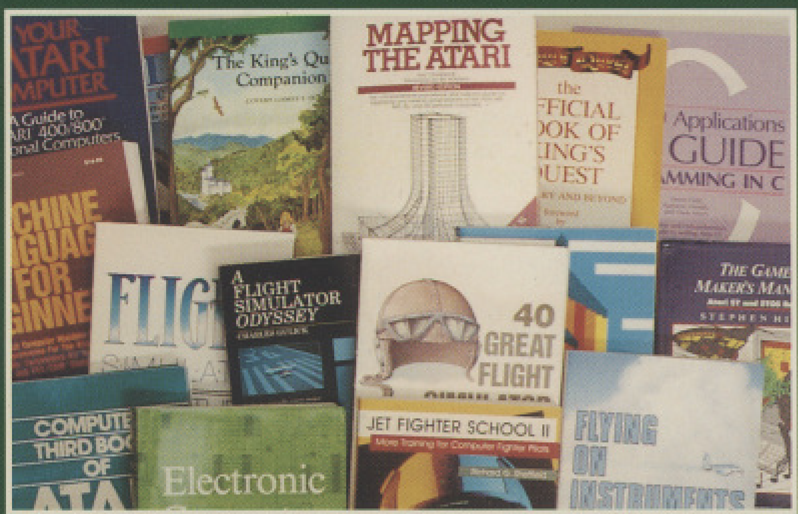
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